February 20, 1961

PULP & PAPER

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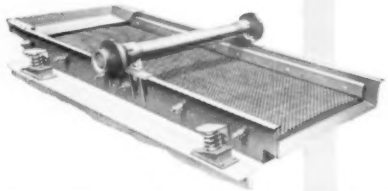
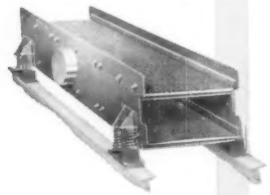
Match your requirements to the letters!

UP VIBRATING SCREEN has a simple, fully accessible unbalanced-weight vibrator. Operating with only two bearings, the unbalanced pulley produces high frequency vibrations whose amplitude can be field-adjusted. These screens are especially useful for screening fine or light materials. They may be floor or suspension mounted and are available in open or totally enclosed types.



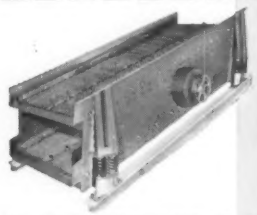
UP

CA VIBRATING SCREEN performs with positive concentric action . . . has a two-bearing, unbalanced-weight vibrator which imparts a smooth, uniform circular motion to all screening surfaces. Designed for medium-duty sizing, scalping, rinsing and dewatering. Numerous mountings may be provided to suit all operating conditions and the versatile design permits field modification of mountings.



CA

CB VIBRATING SCREEN is used for high-tonnage sizing and scalping of medium and large materials. This rugged circular motion screen has a two-bearing, unbalanced-weight vibrator. Vibrator shaft and cartridge-mounted, self-aligning roller bearings are enclosed in a tubular steel housing, well protected from dust, dirt and abrasion by frictional flinger and labyrinth seals.

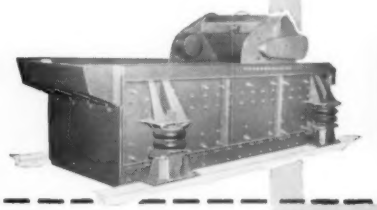


CB

NRM LIQUID VIBRATING SCREEN easily accomplishes efficient and economical dewatering and extraction of solids from liquids. Two-bearing, adjustable, unbalanced weight vibrator produces a high-energy vibration permitting the use of fine screen cloth with minimum blinding or clogging and maximum liquid-passing capacity. Screen motion is quickly and easily adjusted for the most efficient separation.

NRM

CM VIBRATING SCREEN. This horizontal-type, straightline motion screen is designed for high-volume sizing, washing and dewatering. It employs the new Synchromatic vibrator which produces high intensity motion with independently driven vibrator shafts. Reduces downtime and maintenance. Because of its low-slung profile, this screen is ideal for installations where head-room is limited. It is available with single or double decks.



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COVER PICTURE: Harold Annis, Oxford Paper v.p. and new TAPPI president, pauses to ponder during free-wheeling industry discussion with PULP & PAPER editors.

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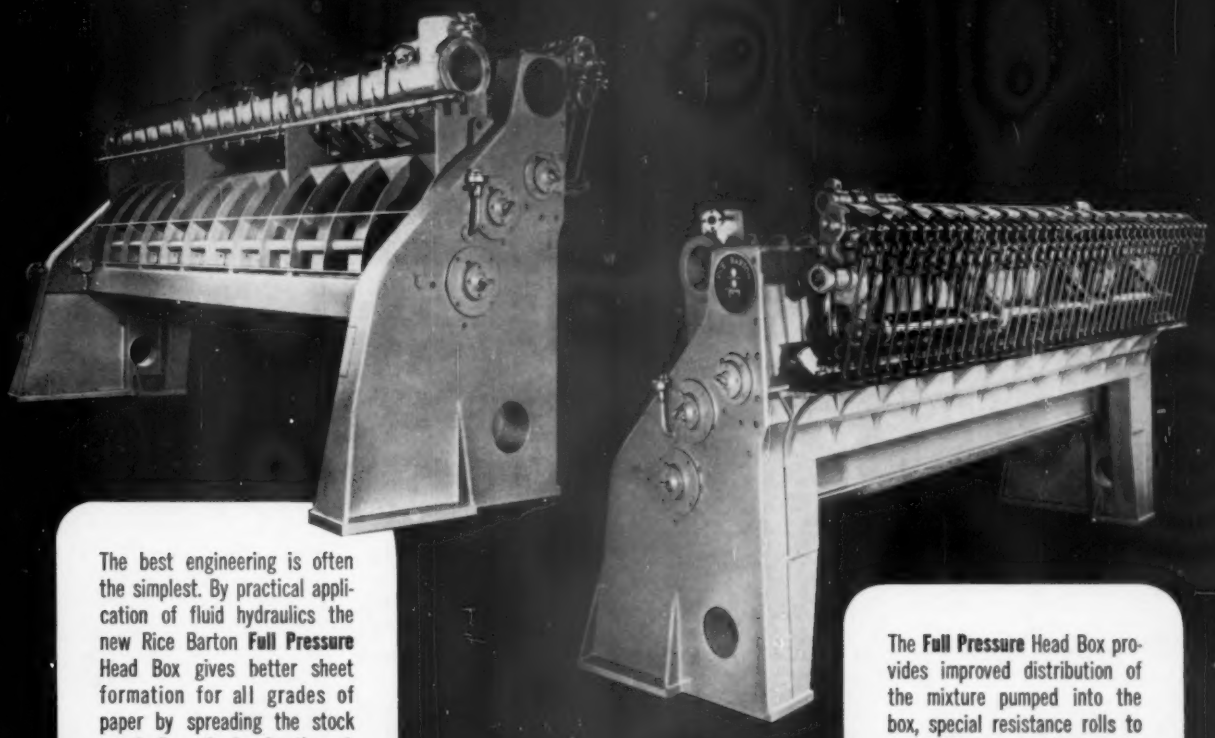
Better Sheet Formation for all grades of paper with Rice Barton's **Full Pressure** Head Box



The best engineering is often the simplest. By practical application of fluid hydraulics the new Rice Barton **Full Pressure** Head Box gives better sheet formation for all grades of paper by spreading the stock evenly from the header through the box onto the wire.

The **Full Pressure** Head Box provides improved distribution of the mixture pumped into the box, special resistance rolls to even the flow inside the box and a nozzle adjustment that floats the stock onto the wire the full width of the machine—smoothly, thoroughly mixed, without streaks or boiling. Write for more details.

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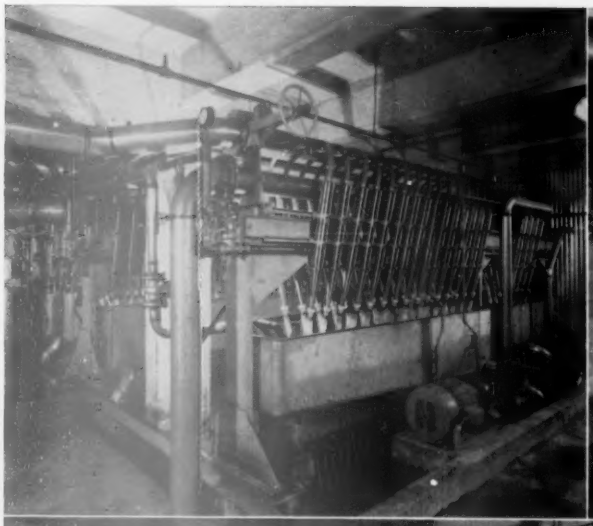
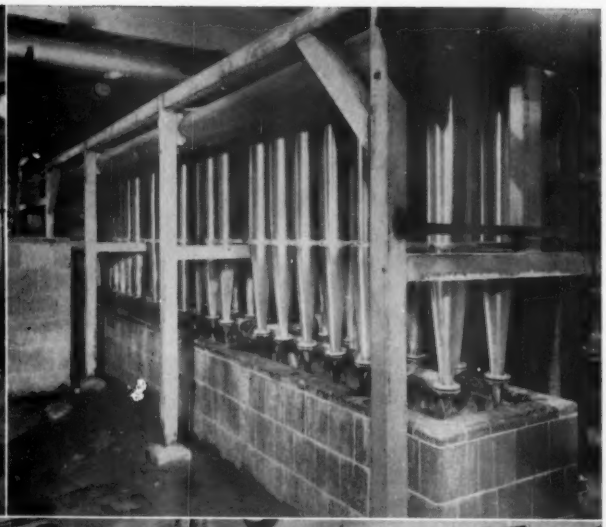




BIRD CYCLEAN users say:

"we get uniformly clean stock — fewer rejects and breaks"

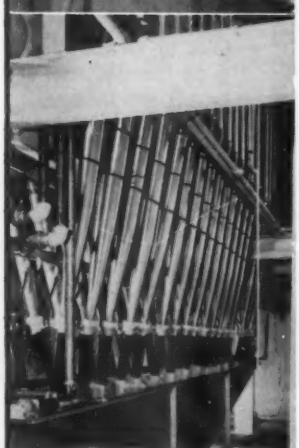
"shive count and dirt count are cut way down"

"improves fibre hydration as well as making a cleaner sheet"

"we notice a marked increase in wire life"

"with Cycleans we're making more paper per day as well as better paper"

Bird Cycleans come in three sizes: 4″ dia. with 36 gpm inlet capacity per unit; 7″ dia., 120 gpm; 12″ dia., 500 or 850 gpm. The 4″ Cyclean may be equipped with patent *non-plugging purge tip.*



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NEWS DIGEST...

Bemis Bro. Bag Co. "changed its pricing terms" Feb. 9 resulting in what some competitors consider a price cut in the multiwall bag field.

Bemis announced it was dropping former pricing method, extending existing price to include freight rates. Result: Bemis is absorbing f.o.b. costs for customers. "It isn't a price cut," a Bemis spokesman told PULP & PAPER, "just a change in terms."

One possible outcome: If a bag customer now has a truck on the road and it is deadheading back to its plant, it can pick up bags at the Bemis plant and receive full carload freight on the return trip. It therefore would become advantageous for the customer to buy at a distance rather than from a plant in its own back yard.

New developments in the knitted paper field are paving way for wider acceptance of product. Inventor Ronald Marks of Dallas, in New York last week, told PULP & PAPER several paper companies are licensees now, 7-year project is moving ahead.

Interest in world trade was stimulated at outset of Paper Week by APPA announcement of estimated world paper consumption in 1960 of 83 million tons. Their economists said this was 4% increase over 1959. World production also increased at sharp rate, with North America remaining largest producing region (52%). U.S. participation in world pulp and paper was up considerably too; 1960 investments in Canada and overseas totaled $78 million, bringing 1957-60 total to well over $400 million.

Prickly problem posed by food additives laws will be broadly discussed at American Paper and Pulp Assn. meeting in the Waldorf during Paper Week. Meeting is set for Tuesday, 9:30 a.m. in the Basildon Room. R. C. Wilcox, Marathon v.p. will review additives legislation during the Materials Committee's open meeting. A. J. Strauss of Riegel Paper presides.

Another industry headache will be aired at the same session, namely, how anti-trust legislation affects purchasing. J. E. Sheehy, who is director of the FTC's Bureau of Litigation, will discuss the overall anti-trust legislation picture.

Growth of paper industry in Europe is hampered by increasing demands on technicians, labor, capital, supplies. Heavy expansion plans have been drawing on limited pool of technically trained men, raw materials. Scandinavia is moving fast to meet challenge.

Lack of access roads in West is hampering development of an estimated 56 billion acres of USFS timber, otherwise accessible for harvesting. Too much capital investment in timber inventory, too little in advance roads are a "matter of local concern and a national problem" (p. 21).

Maine has plenty of wood, more than any state east of the Rockies, but its liabilities may outweigh its assets, says a USFS survey. For instance, twice as much wood grows/year as is cut. But mortality from fires and disease is high (p. 19).

.....BUSINESS

"Not $80 price, $80 cost"

Says publisher—newsprint makers say "wait-and-see."

NEW YORK—Richard B. Scudder's plans to produce a lower cost (de-inked newsprint) newsprint attracted considerable attention in the industry last week. The publisher of the Newark (N.J.) Evening News was quoted in a published report as saying that he could produce newsprint selling for $80/ton. This is about $30/ton under the market price.

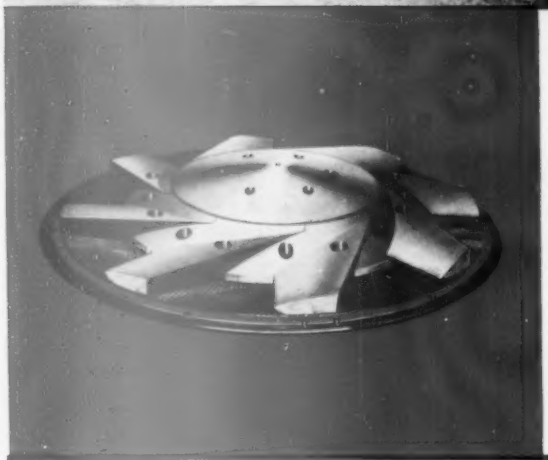
Mr. Scudder told PULP & PAPER what he really said was that he could manufacture newsprint for $80/ton, not sell it at that price. He said his raw material would be "over-issue" newsprint, where deinking would be facilitated because the ink is not as hardened as on used newsprint. He said he has an assured source of supply for his New Jersey mill, now under construction.

Mr. Scudder made the now-famous statement at the 17th Printing Week banquet in Newark where he received the annual Citizenship Award of the Master Printers Assn. of Newark. His work in developing the deinking newsprint process was cited in the award which said, "His dedicated and persistent efforts have won for him and the entire newspaper industry a brilliant success."

Conventional newsprint producers were quite calm about the attention given to Mr. Scudder's statement, recalling that other newspaper publishers before him had not been uniformly successful in similar ventures.

Mr. Scudder says his technicians have spent 14 years, on and off, work-

No. 2000
goes to KVP Sutherland



"Service and performance" . . . that's the basis for the remarkable success of the world-famous Black-Clawson Hydrapulper® . . . A success story that had its beginning in 1939 when the Hydrapulper was developed.

KVP Sutherland bought one of the very earliest Hydrapulpers, and No. 2000, which was recently shipped to Parchment, Michigan, makes their 14th Hydrapulper. Equipped with the new Vokes Rotor, No. 2000 incorporates the latest in a succession of design and performance improvements made over the years.

SHARTLE DIVISION
Middletown, Ohio
COMPLETE STOCK PREPARATION SYSTEMS

BLACK-CLAWSON

ing on what is still an undisclosed process. Associates say the big difference between his project and previous ill-fated "publisher's dreams" to make a cheaper newsprint is a "secret chemical." Be that as it may, trial runs were reportedly made in a New England mill at 982 fpm.

The new plant is Garden State Paper Co., being built at Garfield, N. J., with Roderick O'Donoghue, New York City consulting engineer, as designer and builder.

Another confirmed feature of this new mill will be the use of a large number of centrifugal pulp cleaners and stock cleaning equipment following deinking. Mr. Scudder said patents have been applied for.

The new mill, Mr. Scudder said, is designed to make 150 tons per day at the startup and later 200 tons per day.

The first questions of conventional newsprint producers, when Mr. Scudder's plans were mentioned by PULP & PAPER, was: "Cost at what point? What about transport costs? What about selling costs? Are his costs fixed at all times?"

There is no question but that on Paper Row in mid-Manhattan many paper company executives were regarding the Scudder project as an interesting venture but, hardened themselves to the pitfalls that lurk between a dream and successful mill-scale operation in this industry, they also took a "wait-and-see" attitude.

One newsprint manufacturer commented that "we are all trying to make paper cheaper to cover our increased costs. No one likes to pay more for anything. All the major newsprint companies are pouring a lot of money into research for this purpose."

LATEST PHOTO of Garden State Paper Mill was taken during recent snow storm, shows its close proximity to Passaic River.

Another said: "We have heard that Mr. Scudder is going to make newsprint at $10 under the market price. But nobody is going to buy this newsprint until it is a suitable product."

"Wastepaper is weak right now but with even the slightest glow of prosperity it will go up," said another.

It was noted that Field Enterprises of Chicago are successfully making newsprint from wastepaper at the Manistique, Mich., mill and this is being used in a captive market by the Field's Chicago Sun-Times. But other paper grades are being made at Manistique, also, and newsprint producers believe the other grades are aimed at getting higher prices to cover Manistique costs. Denver flotation system is used here for the preparation of waste stock.

A newspaper publisher in Gary, Indiana, some years ago tried making newsprint from wastepaper but the experiment failed. Frank Gannett, the well known northern New York newspaper publisher, sponsored a plant making newsprint from wastepaper during the depression years, but this also was abandoned with the nation's economic recovery.

As to the mystery of chemicals to be used at Garden State Paper Co., an experienced technician in the field, said "they all use detergents to get the ink out and they are essentially the same. The important problem is what has to be put back in the paper stock."

Said another technical leader: "Usually, in such mills, a substantial amount of virgin woodpulp also will be needed to make a good sheet."

Much speculation has centered on the continual re-use of newsprint fibers. Says one industry man, "If Mr. Scudder's mill makes newsprint from overissues and keeps re-using such fibers, there will come a point at which the fiber will be considerably weakened to be of any use." But, explains one of Mr. Scudder's associates, "Efficiency of collection is never more than 30%. You actually don't get the same fiber over and over again. We have made a good fiber without using chemical pulp. But if you use 5-8% chemical pulp you can run your machine faster."

According to some observers, the appearance of newsprint that will be made from the process is excellent and color is good.

Actually, the whole process will be a mystery until Garden State Paper Co. goes into production sometime early in 1962. ■

Wastepaper: "Optimism amid gloom . . ."

NEW YORK—Although wastepaper is having a bad case of jitters, the future can be bright, says George A. Graham, asst. secretary-manager of the Waste Paper Utilization Council. Speaking to a meeting of the New York Assn. of Dealers in Paper Mills' Supplies, he said, ". . . need for wastepaper is not going to disappear. In fact through the coming years the need will increase. More wastepaper will have to be recovered." Two influencing factors: Growing world population with increased standards of living and increasing competition for forest lands.

Two possible solutions cited by Mr. Graham are better consumer-dealer relations and better quality product.

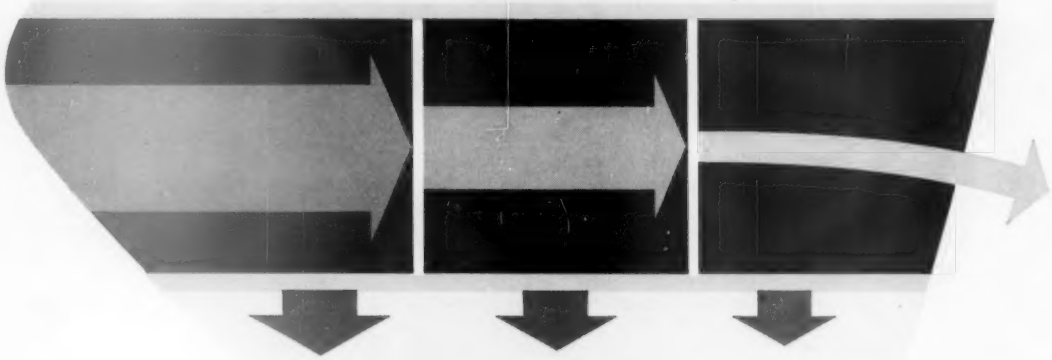
Wastepaper users and wastepaper dealers are both beneficiaries and victims of technological progress in papermaking, he says. New additives enable paper to find constantly widening areas of use. At the same time, however, these additives are becoming a big headache to consumers. They find their way into wastepaper stocks unless great care is taken and become what the British call "pernicious contraries." Belaboring wastepaper packers or rejecting their product cannot solve the problem, stated Mr. Graham.

"Is wastepaper backed by a quality company that is known to stand by its product?" asked Mr. Graham. The dealer's name, he said, should be prominently displayed. He also asked if generators could be pursuaded to handle their wastepaper so that sorting operations at the mill would be virtually eliminated.

Only in this manner, he challenged, can consumer good will be gained. ■

From S. W. Hooper: a double effect design improvement in pulp screens

Cowan K-series centrifugal pulp screen operates at 100% increase in inlet consistency and a 66% decrease in fiber rejects.



In principle the new K-series screen, which in place of white water uses feed pulp as dilution in an elongated and narrowed cylinder, sharply increases the acceptance of pulp fiber for a given screen plate area.

By retaining the water-carried fiber longer within the cylinder, greater separation is accomplished.

Saving at the intake end: since input consistency can be higher by 100%, you need move less water per ton of accepted fiber.

Saving at the outlet end: since reject fiber is reduced by two-thirds, secondary screening requirements are also reduced or eliminated.

We would like to discuss the K-series screen with you. Your letter, phone call or wire will get prompt action.

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Manufacturers of pulp and paper mill equipment
P.O. Box 129, Delmar, N.Y. Telephone HEmlock 9-5231

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Knit paper gains acceptance

Texas developer begins to find interest among big paper companies

NEW YORK—Knitted paper may provide the industry with still another new product breakthrough at a time when marketing and product development are taking on increasing importance.

This is the claim, but until-recently frustrated hope, of Texas meat packing supplier Ronald H. Marks, who is president of Enterprises, Inc. After doggedly, and sometimes almost vehemently, pounding the pavements and doors leading to top industry leaders, he now appears on the verge of finding his audience.

The raw product for his knitted paper is anything from tissue to 50, 60 and even 70 lb. kraft. The paper is slit to 3/16 and 3/64 in. on machines designed by Mr. Marks. Wet strength properties are provided. Mr. Marks started his venture seven years ago after building up a business in Texas that produces some 500 different products for sale to the meat packing industry. His first product from knit paper: Pap-O-Net, a ham bag with extraordinary strength and knit and a wide mesh that permits better smoke penetration, improved smoke flavor.

At Enterprises, Inc., 612 Elm Street, Dallas, 25 machines, capable of 50 different assemblies, can turn out 75,000 bags in 24 hours. It is faster than weaving and is as strong as 4-ply multiwall, said Mr. Marks in an exclusive interview with PULP & PAPER.

But if Mr. Marks got away from the gate fast, his pace soon slowed to a near walk. As he says: "The hurrier I went, the behinder I got."

"All I ask is when I talk to paper industry people at the executive level they listen with an open mind, not throw me out the door. I've been accused of being a crackpot, or being crazy . . . executives won't talk to me. I spent two years trying to convince one junior executive it doesn't cost me anything to slit paper. I had the figures but he just sat there and insisted it had to cost me two cents a pound. It just doesn't."

American Cyanamid did listen and thinks Ronald Marks has something. They are taking more than just a casual interest in his project. Furthermore, other products are now being prepared from the knitted product: seamless bags for hauling wet fish, fruits and vegetables that can take the place of wirebound boxes; hats, other clothing items; as a curing blanket for concrete and in housing construction. The product range is broadening. The hats were a good example.

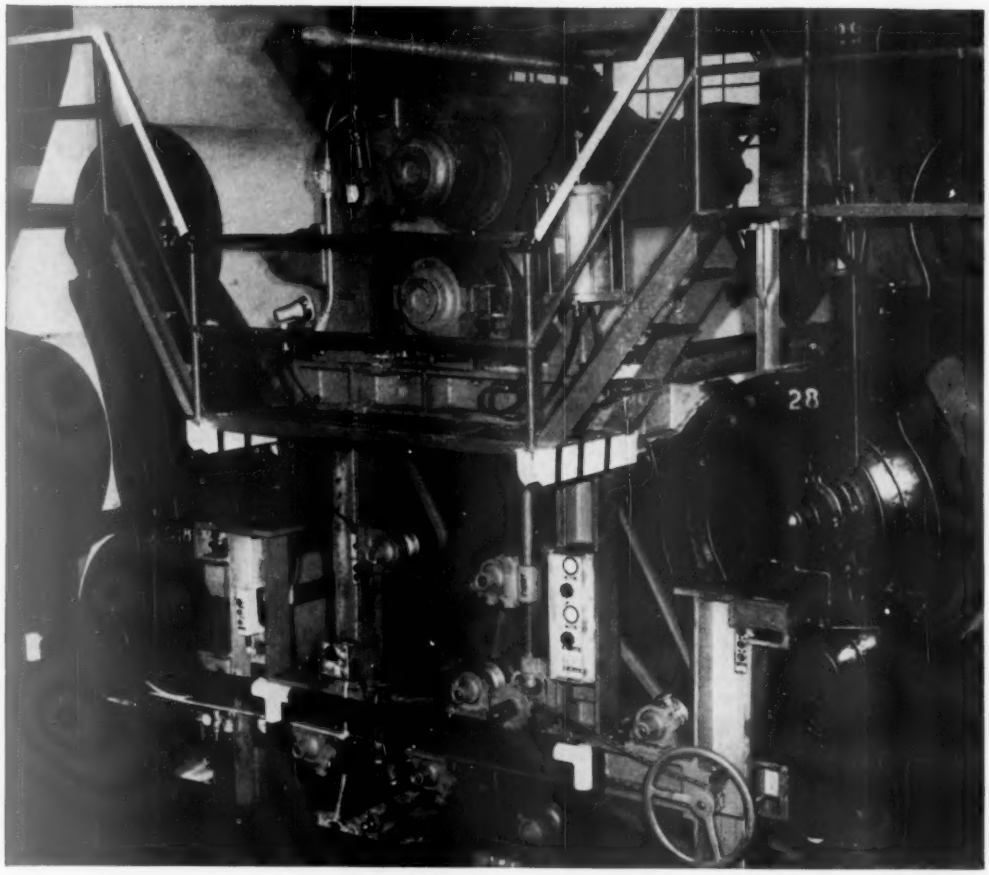
"I'M JUST A GUY FROM DALLAS with a product that can put paper in a new market. I'm not asking for money. All I want is the paper industry to listen to me with an open mind." So says Ronald H. Marks, Pres. of Enterprises, Inc., in foreground. With him is American Cyanamid manager of Technical Services Robert Lull, who listened. At right, model wears knitted paper hat fashioned by top New York hat designer William Jay.

Hats made by famous designer William Jay of New York were sold at Neiman-Marcus for $35 to $50. Mass produced, they can now be bought for as low as $2.

"I tell folks in the industry I'm just a guy from Dallas," said Mr. Marks, "I have a process for making knitted paper which I developed originally for ham bags and it has found terrific acceptance. There's no waste, no labor. Just come down and see this thing, I tell them."

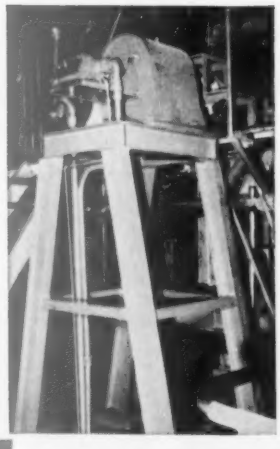
There has been a recent flurry of interest. Several top paper companies have sent technical and research people to look at his plant.

"WE HAVE CHANGED PAPER'S CHARACTERISTICS so that woodpulp can be washed and dry cleaned. It can be stretched too," comments Texas developer Marks. At right, closeup shows knitted paper construction.



Step up drying rate...get better finish

with a MANCHESTER HOT PRESS



Whether you make heavy board or fine lightweight papers, you can speed up your drying rate and improve sheet finish by installing a Manchester hot press in your dryer section.

One mill reports that it reduced steam pressure in its dryers from 50 p.s.i. to 30 p.s.i. with a Manchester hot press—more than compensating for drying capacity lost by removing five dryers for the installation.

Other mills consistently report improved sheet finishes after putting in a Manchester hot press.

The hydraulic drive for the hot press (shown at the left) is compact, easy to maintain, and extremely simple to install. No building alterations are required, permitting the press to be readily installed over a weekend.

Manchester has wide experience in hot press work and can provide the kind of installation that will save money and make money for your mill. Write for more information applied to your particular needs.

THE MANCHESTER MACHINE COMPANY

MIDDLETOWN, OHIO

SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY

"When they see it," "they can appreciate that I truthfully can slit paper for nothing. . . .!"

This puts paper in a new class and doesn't substitute anything being done with paper now, claims Mr. Marks. "But it does refine paper and paper uses. The basic properties are changed so it can be washed and dry cleaned. There is considerable interest outside the industry, especially by textile makers."

One frustration now facing the Texas executive: Textile firms need to know more about the technical properties of the paper they are working with but Mr. Marks is having trouble getting specific and reliable data from the industry.

More than casual interest is shown in the fact that at least two big pulp and paper companies are now licensed to use the knitted paper process. Several others are about to take the plunge, or are investigating.

Queried as to its possibilities, one research executive said: "It's our job to be on top of anything new like this. I wouldn't have made the trip all the way to Dallas if we hadn't had a pretty good idea it was worth looking into. It has good possibilities. This fellow Marks is right when he says he can slit paper at practically no cost. You've got to see it to believe it."

Another industry executive summed up his thoughts: "This idea of paper garments isn't a gimmick anymore . . . it has big business potential."

By last week, Mr. Marks, preparing to return to New York for another crack at the industry during Paper Week seemed to be feeling better. His motto appeared to be changing. Now it is: "The hurrier I go, the aheader I get. . . ." ■

Europe focuses on Scandinavia

Shortages restrain growth but mills count on aid from America

By ALBERT W. WILSON, Editor, PULP & PAPER

PAPERMAKERS of Europe who are planning 50 or more new machines and talking or dreaming of almost twice that many in the next several years are hampered in their eager push to meet a fast-growing demand by shortages of technicians, labor, capital and supplies.

To solve their raw material shortage they look first to Scandinavia and secondly, to North America. France, Germany and Italy are able to step up their hardwood, mostly poplar pulp production but this will only fill a minor portion of their needs.

Sweden's plans to increase pulp capacity by 1.5 million tons by 1964 to a grand total of 7.1 million tons is, perhaps, the one most important fact in the eyes of the European mill owners. My discussions with many of them in recent months emphasized this point. Sweden has earmarked only 950,000 tons of the additional pulp capacity for market—the rest to be converted to paper and board, also principally for European markets. But this latter figure is flexible, necessarily, and can be changed to meet changing conditions.

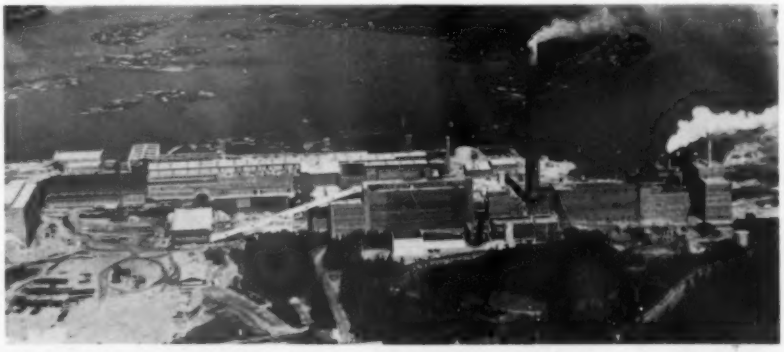
North American woodpulp exports also are increasing. There will be an additional 350,000 on the market this year, from Celgar, Woodfibre and Thurso mill expansions and, early in 1962, the Nova Scotia mill of Stora-Scott will be producing. This will just about match the Scandinavian growth.

Finland is increasing pulp capacity by 39% by 1962, and paper and board about as much. The booming European market was a godsend to the pulp mills of Canada and United States, who were able to operate at 88 to 90% last year, when otherwise they would have suffered badly from over-capacity. As stated here before, the Europeans do not count on Russian pulp in any appreciable amounts for at least several years. In England, I was told most purchases were as a filler pulp.

France, Germany and other European countries which have counted for many years on a supply of Russian pulpwood are worrying that this will be drastically reduced, as Russia seeks about a 10% annual increase in its paper production.

Growth of Husum mill of Sweden is one of the most interesting of the many Swedish developments on which European and American eyes are being focused, as well as pulp buyers elsewhere. For this Mo och Domsjö mill, two-thirds the way up the Swedish Baltic coast, has increased its production from 550 to 770 tons of kraft pulp per day in just the past two years. It is all for market—making it one of the biggest single suppliers of cellulose.

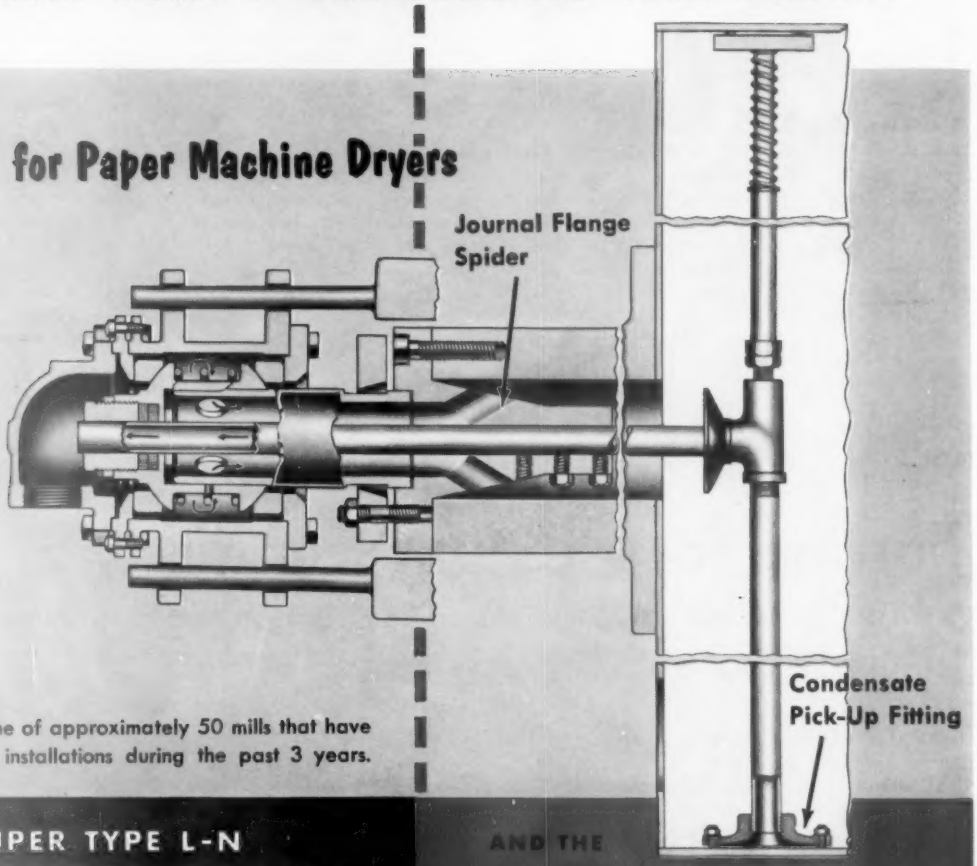
A new 8-stage Kamyr bleach plant section with two stages of chlorine dioxide has upgraded quality. Four



EXPANDING FINNISH kraft and paperboard mill of Enso Gutzeit at Kaukopaa is said to be largest in Europe. When expansion is completed this year, kraft pulp production will total 600,000 tons, of which 450,000 tons will be converted in board mill into kraft liner and kraft board.

You've never seen a Combination like this*...

for Paper Machine Dryers



* Unless yours is one of approximately 50 mills that have made tests and installations during the past 3 years.

SUPER TYPE L-N

JOHNSON JOINT
with "Quick Release" Nipple

AND THE

NEW JOHNSON ROTARY SYPHON

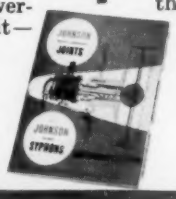
Best Design Yet for getting steam into dryer rolls with rotating syphon pipes. Needs no lubrication or adjustment. Has only a few simple parts—less chance of trouble plus easier field servicing. Assembly plate provides ready access to syphon pipe.

Floating Action—Rod supports carry all the real weight, let the rotating assembly "float" freely inside. Adaptable for machines with open or enclosed gearing.

SUPER Construction...*and Stamina*—Teams rock hard "Green Streak" seal rings with special Ni-Chrome plating, slashes friction load and increases service life.

Easy on...and off—"Quick Release" nipple uses powerful wedging action to lock joint in place. Install it—or remove it—with just an end wrench.

Engineers' Data Book summarizes research behind this new development, has full technical information. Ask for copy of: "Condensate Behavior in Paper Machines."



Better Drainage of dryer rolls results from a new concept of condensate pick-up design. Holds condensate to a minimum. Rotary Syphon can be located any place along the dryer shell. Helps to reduce horsepower requirements.

Higher Roll Temperatures—Thinner condensate film means better transfer of heat units to dryer shell. Better drying can be translated directly into increased production.

Easier Installation—No need to get inside dryer to drill and tap dryer head. Install right through manhole. For rolls with handholes only there's even a journal-inserted rotary syphon.

Reduced Maintenance—Only a few simple trouble-free parts. Ends bearing wear caused by unnecessary water weight and prolonged "cascading." Easily removed for inspection.

Trial offer still goes. We'll gladly furnish a pair of Joints and Syphons for 90-day trial in your own mill, without cost or obligation. Ask for details.

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Rotary Pressure Joints • Direct Operated Solenoid Valves

new mild steel digesters giving a total of 16, and 12 more diffusers for washing are other additions.

The biggest single mill project now in Sweden is the doubling of capacity of Fiskeby Fabriks AB near Norrköping, central Sweden, by 1963. Costing 160 million kroner, it will bring paper and board capacity to 200,000 tons. This is largely for European markets. A Beloit 250-ton 285-inch kraft sackpaper machine is a major item.

This expansion in paper is, company officials said quite frankly, based on expectation of an increase of trade between the Outer Seven and Inner Six Trade Markets of Europe. In other words, Scandinavian mills are expecting to sell paper as well as pulp on the Continent.

Early this year Svenska Cellulosa starts its big linerboard mill rolling 100,000 tons annually off a big Beloit machine at Munksund, in northern Sweden. Only a few miles away, later this year, the state-sponsored mill at Petea, another 100,000 ton linerboard mill with another big Beloit, starts production.

The Skogsägarnas mill in Mönsteras, new only two years ago—80,000 tons of sulfate pulp—is being doubled in size. This is owned by 6,000 farmers and, happy with their industry, they are building another bleached pulp mill only 180 miles to the south, at Morrum. Also in this southern part of Sweden—suddenly discovering it has an oversupply of wood now that birch and hardwoods are used—is the big Hylte mill where the Weyerhaeuser-Howard Smith-Babcock & Wilcox magnesia base sulfite recovery system is being introduced. That's only 30 miles from Morrum.

The Korsnäs mill at Gävle, whose executive vice president and sales director, Gösta Hall, was widely known in America during and after the war, when he represented the entire Swedish industry here, is also expanding. In a year or so, kraft pulp output will rise from 115,000 to 160,000. Bleaching capacity is being increased to 160,000 tons. A new paper machine will start up in mid-year. Not many miles from here is Skutskär, the Stora Kopparberg mill expanding in soda two-stage pulp by 20% more this year and 65% in 1962.

Billeruds, with a new paper machine, Uddeholms, with all machines being speeded up, and Wifstavarf mill, another pine pulp convert, with a new machine are typical of Swedish expansion which I found everywhere in traveling through most of the length of this country.

In Finland, the huge Enso Gutzeit Kaukopää mill has been carrying on a continuous expansion since the war. This year its fourth Beloit board machine is operating. Sulfate pulp production this year increases to 600,000 tons and kraft liner and kraft board to 450,000 tons, making it the biggest mill in the world outside of North America. The Heinola mill of the big Tampella has started up its big corrugating material mill. Two new newsprint mills, a writing paper machine, a creped paper machine are other recent machines starting up in Finland. And more newsprint machines are on the way, as Finland intends to take a place as a major newsprint supplier to the world.

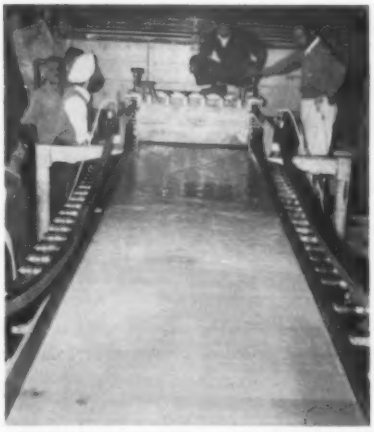
Industry news notes around the world

From Japan there is news of a 274-inch newsprint machine making 200 tons a day, starting up at Jojo Paper Co.'s Kushiro mill. Russia seeks Japanese dissolving pulp—got 10,000 tons in 1960 and wants more. It will get another 10,000 by July. Japanese are worried because of the effect the U.S. orders to limit overseas purchases may have on their trade development. Some pulp and paper exports will be decreased.

Mo och Domsjö AB, one of the major Swedish pulp companies, has acquired a minor interest in the Papelera Rio Parana pulp project near Buenos Aires, Argentina. U.S.A. and Argentine government funds also will help to finance this mill.

Some German manufacturers will assist in the Papel Amazones pulp mill project in Brazil, a small mill using jute and imbauba timber. It is to be in the Amazon country at Parintins. Brazil is a popular pulp and paper development area with several U.S. companies involved in new or expanded mills.

In Spain, a government project for a mill on the south coast at Motril is progressing. A second machine for 50 tons has been purchased. Kraft paper and corrugating material will be made from sugar cane bagasse. Tax allowances have been made by the government for seven other paper and paper converting plants.



INDIA'S FUTURE PAPER INDUSTRY may hinge upon this pilot Sandy Hill Fourdrinier at Forest Research Institute at Dehra Dun, India.

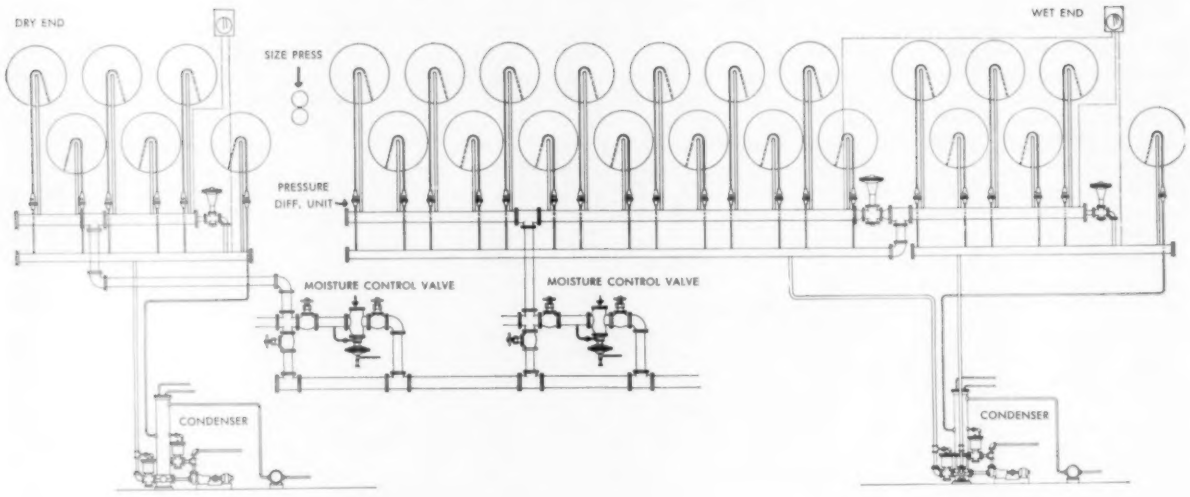
Portugal is expanding with another new kraft pulp mill planned, the equipment being ordered. Caima Pulp Co., whose sulfite eucalyptus pulp is sold around the world, is doubling to 40,000 tons. A B&W boiler and Swedish Flakt dryer are being installed.

In Switzerland, the Sihl-Zurich paper mill and Laufan paper mill have ordered new machines. In the past year, Perlin, Cham and Balsthal installed new paper machines. Swiss paper and board production in 1960 totalled 480,000 metric tons as compared with 468,000 in 1959. Switzerland has joined EFTA, and it therefore has increased supplies from Scandinavia due to the 20% lowered tariff. Swedish paper competition has been of concern to papermakers in Britain and Austria, also EFTA members, for the same reason.

A recent report from Czechoslovakia reveals this country is experimentally developing a two stage soda base sulfite process. The Stora Kopparberg process used in Sweden, and soon in Nova Scotia, is the similar process known to the Western nations. The Czechoslovaks also report development of fertilizer uses for ammonia base sulfite waste liquor. Their laboratories are at Bratislava.

New developments in India are reported almost every week. Now it is a new rayon pulp mill projected for Mavoor, being built by the Birla company. It will have an Escher Wyss machine and Swedish Flakt dryer. The

ALL Steamed Up OVER STEAM COSTS?



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- The system is versatile, now being used in mills running condenser tissue, towelling, glassine, writing papers, board and other grades.
- Installation is simple, in many instances existing piping may be used and installation made over weekend shut-down.
- *Complete details will be sent upon request. Please state if any special problems are involved. We will reply promptly, fully and without obligation.*

During 1960 a mill a month switched to this equipment!

APPLETON MACHINE COMPANY
APPLETON, WISCONSIN

Shree Gopal Mills and Star Mills are soon starting up new paper plants.

India, now with only one newsprint mill, National Newsprint in Madhya Pradesh province (100 tons per day), has government approval for two more newsprint mills to use imported pulp. It is felt that even importing groundwood will be cheaper.

The Sahu Jain (Rhotas Industries) mill will make newsprint from bagasse, using process patented by Crown Zellerbach Corp. and Hawaiian Sugar Industries Development Co. There are other newsprint schemes in India, but coniferous woods for groundwood is too high in the Himalayan Mountains to be practical for raw material at this stage.

Australia and New Zealand are other areas where growth continues at a fast pace. There is a new $1.5 million tissue mill at Millicent, Australia, owned by Australian Paper Mfrs. Ltd. and Cellulose Australia Ltd. The 122-inch machine was built by Walmsley, England.

With all the farflung growth in paper, the greatest is still in Europe. For all Europe, paper production increased 10% in 1960. In Britain and France the latter months of 1960 and early 1961 saw a 17% increase pace in these countries. And in Italy, production for the first half of 1960 was up 17% and presumably somewhat greater in the latter half. These figures are far above the usual increases of postwar years of from 2 to 4%.

North Africa is keenly interested in paper industry development, despite the turmoil of young, uncertain free governments. I visited in December a North African mill making fine printing papers—of quality grades, using both esparto grass and woods of various species—and this mill may expand with financial aid from European or North American paper interests, or both. I must say I was shocked a bit to meet the "chip-on-shoulder" attitude of newly free Arabic peoples of the North African states first hand. They ask no favors of Americans or Europeans, but their wise leaders may accept some nevertheless, provided the North African keeps a major control. The newly free Moroccans I met have discouraged the tourists from Algiers and they may be poorer than they were, as a result, but they are prouder and seem more satisfied.

I dined in Zurich with an Egyptian builder of a new mill, and asked him where this spirit of challenge and revolt against the European and American will end in Africa. His reply: "Be patient. This is like the pendulum of a clock. It swings far out, but it will swing back." In Egypt, a new mill near Alexandria, being built by a combination of German firms, will make fine writing and printing papers from rice straw and purchased pulp. The buildings are up, machinery is being installed, including two paper machines. Two other mills are also going up in Egypt, the latest being built by Parsons & Whittemore, supported with a substantial U.S. loan. ■

Packaging Corp. sets second plastic move

EVANSTON, ILL.—Packaging Corp. of America has made its second major move within a month into the expanded polystyrene plastics field. It has completed a purchase agreement to acquire the plastics division of Lakeside Mfg. Co. of Milwaukee, Wis., large expanded polystyrene packaging operation in the Midwest.

Last month PCA announced plans to enter the plastics industry with acquisition of Worcester Moulded Plastic Co. With the two companies, PCA now becomes a leader in this field of expanded polystyrene. This relatively new, inexpensive, shockproof and extremely lightweight material has been called "an ideal companion material to paperboard," by Packaging Corporation management. Its greatest potential is in inner packing inside folding cartons and corrugated containers.

PCA's network of 49 plants now include eight paperboard mills, 22 corrugated container plants, 10 folding carton plants, three molded pulp plants. Other facilities include two large production centers in Wisconsin. Corrugated container plants at Colby, near Wausau, and at Madison, were part of the former American Box Board Co. before it merged with Central Fibre Products Co. and The Ohio Boxboard Co. to form Packaging Corp. of America some eighteen months ago.

Lakeside Mfg. Co. entered the expanded polystyrene plastic field in 1958. It developed new packaging applications and has also designed specialized semi-automated machinery.

PCA is purchasing only the plastics division of Lakeside and will continue to operate it in Milwaukee at its present location. ■

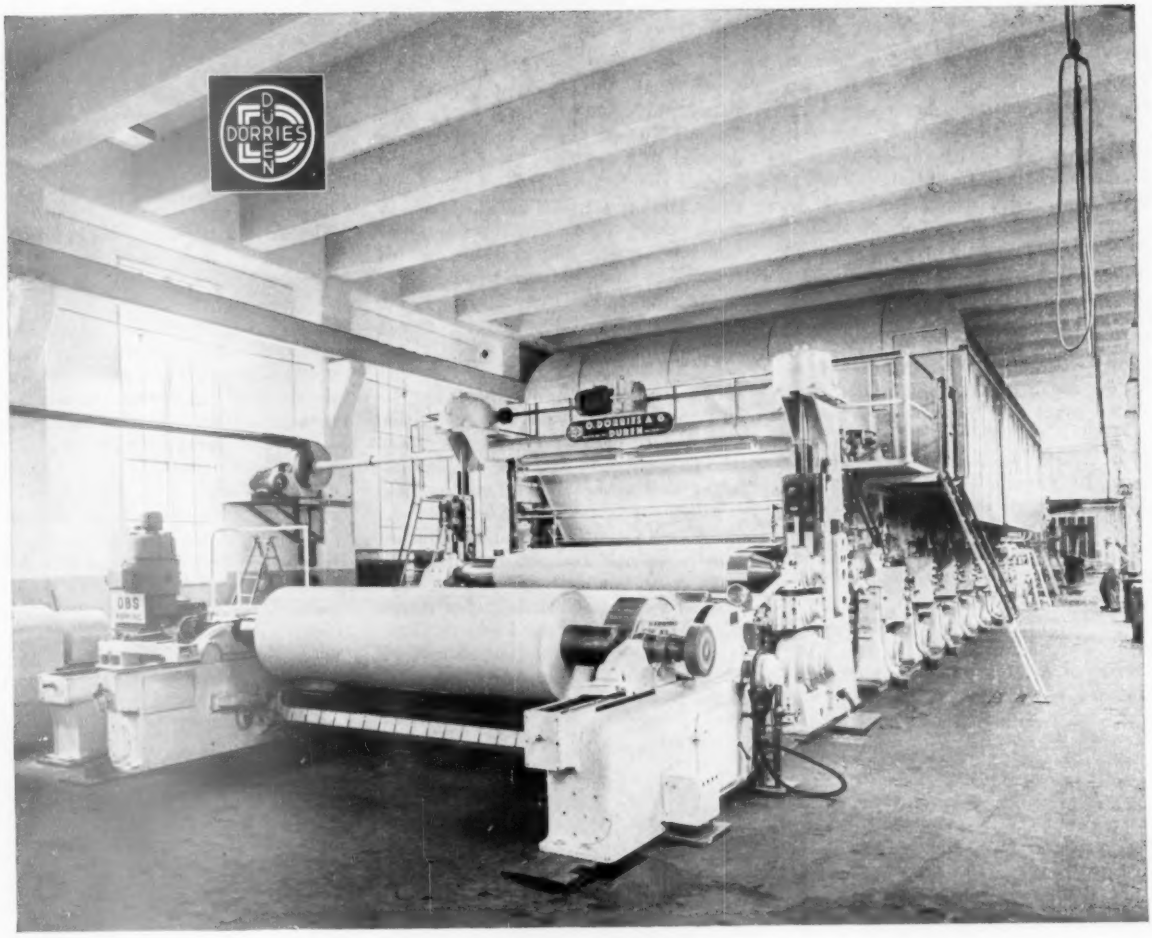
American Paper Specialty Co. bought

NEW YORK—An independent group has purchased The American Paper Specialty Co. from Rapid-American Corp. for $11,750,000 in cash and notes. News of the purchase came from Robert P. Miller, who will be president and chairman of the new organization.

American Paper deals primarily in school supplies and stationery and its broad line includes such items as binders, briefcases, greeting cards, gift wraps, etc.

Besides Mr. Miller, the new company's officers include Daniel J. Manella, executive vice president, and Bernard Corn, secretary and treasurer. Members of its board of directors are Robert P. Miller, chairman, formerly vice president of Rapid-American Corp.; Andre Hercz, president, Jo Rey Import Corp.; Reginald H. Johnson, Jr., vice president, Chemical Bank New York Trust Co.; Charles H. Klein, formerly president of Progress Lithograph Corp.; Daniel J. Manella, formerly vice president of American Paper Specialty Co., and Robert Westheimer, partner in Westheimer & Co., investment bankers.

With office headquarters at 310 Fifth Avenue, New York City, the company has five operating divisions: United Leather Goods Corp. of Brooklyn, N.Y.; American Paper Specialty Co., Chicago, Ill.; Eastern Tablet Co., Albany, N.Y.; Osborn-Midwest Paper Co., Marion, Ind., and Smith-Stewart paper Products Co., Brooklyn, N.Y. ■



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Canadian reports at a glance

Deformation in pulping, digester explosion causes, automatic weighing techniques among CPPA summaries; samples of equipment shown

MONTREAL—Several of the leading technical papers presented at the annual CPPA meeting in Montreal appeared in our last issue (PULP & PAPER, Feb. 6, page 7) along with a comprehensive report on the meeting itself. Included were summaries on newsprint, papermaking, automation, quality control. Other summaries, plus photographs of some new equipment developments, are continued on this page. Complete copies of papers presented at technical association meetings will be published in *Pulp and Paper Magazine of Canada.*

Influence of Deformation in Pulping of Mechanically Treated Wood—J. E. Stone and L. E. Nickerson, Pulp and Paper Research Institute of Canada.

The effects of deformation of sulfite pulps after beating were reported. The double fold test showed greatly weakened strength. Tensile also dropped though this test showed the least effect from deformation. There was what the authors described as intermediate effect on tear.

The fibers themselves were greatly affected, but this did not necessarily affect fiber bonding. Long fibers were broken up into shorter and shorter bits. There was an 88% decrease in the length of the longest fibers after a 50% deformation.

IBM 1620 RECEIVED WIDE ATTENTION as triple-capacity data processing machine. It is used for commercial reports and solving scientific, engineering problems. Pulp & Paper Research Institute (of Canada), Consolidated Mining and Smelting, others have ordered them.

Causes of Digester Explosions and Safeguards—D. J. Chisholm, assistant division engineer, Consolidated Paper Corp., Ltd., Port Alfred, Quebec.

Recorded explosions in lined sulfite digesters were compared with conditions existing at the time maximum stress measurements were made on a lined sulfite digester at Port Alfred. Both explosions and the Port Alfred data were associated with winter operation, startups after long shutdowns or too-rapid cooks after shutdowns. The abnormally high measured stress under such extreme conditions of 19,400 psi. was well above design limits but below measured elastic limit at Port Alfred. The author says the ASME code for unfired pressure vessels is inadequate for digester design and should be amended to provide allowance for . . . **turn to p. 68**

ELECTRONIC CONTROLS AND IMPROVED LOG HANDLING also were shown at CPPA meeting. At left is Foxboro's new Auto-Selector Digester system which provides increased automatic control over cooking cycle. In center, component parts of Ultra-Vision Flame Sensor which is used for flame drying paper electronically. It was debuted by Minneapolis-Honeywell, earned a lot of attention. Last picture shows the Forano log sorting and slashing system which takes both short and long wood from conveyor. Short logs are removed by rod in center of sorter, long wood passes over exclusive Speed-up roll system and is carried to slasher.

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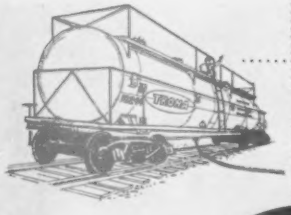
ABERDEEN and **HENDERSON** . . . Highest quality SODIUM CHLORATE



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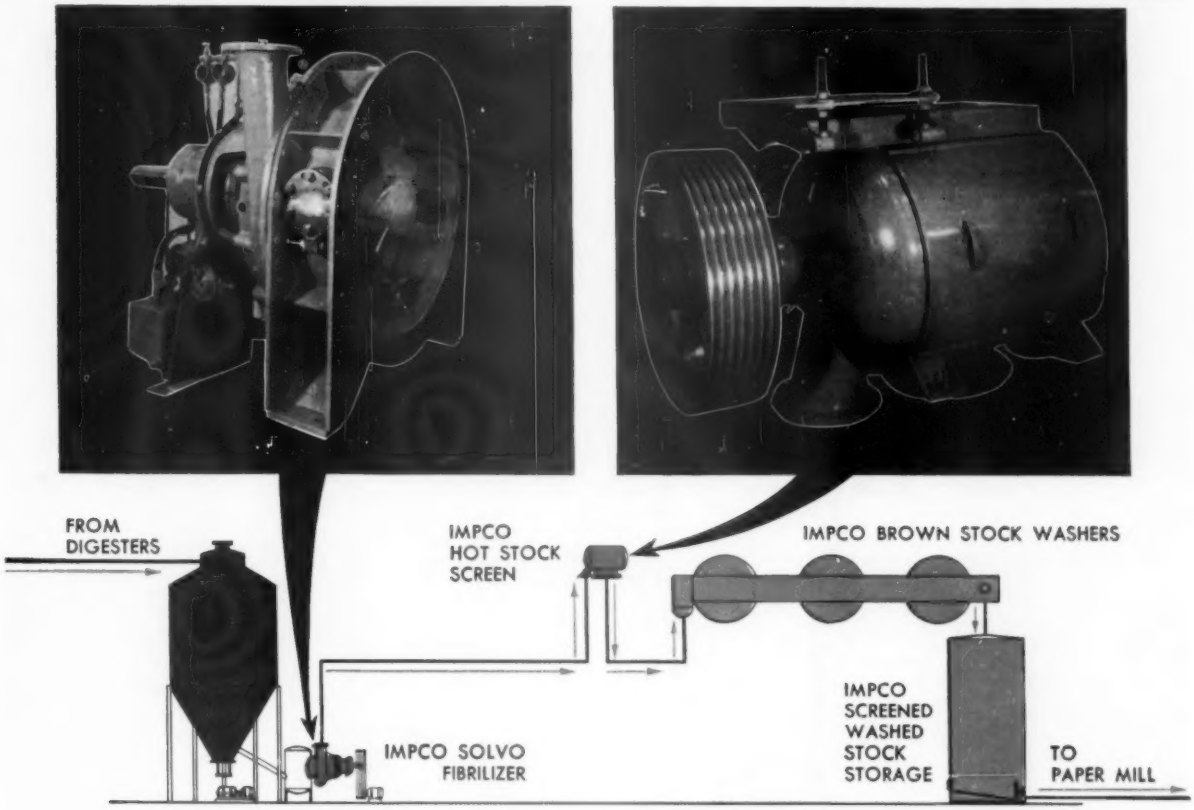
Impco *Again* Simplifies the Pulping Process with the Fibrilizer and Hot Stock Screen



The new Impco Fibrilizer and Hot Stock Screen combination has opened the door to vast savings for the industry.

The Solvo Fibrilizer produces a combined action of pulp classification, complete soft knot defibering (not refining), hard knot shredding, higher initial yield and eliminates knot handling. Its built-in pumping action eliminates the need for a stock pump. All these operations are being accomplished for about one-half horsepower days per ton.

The new Impco Hot Stock Screen, installed directly ahead of the primary stage brown stock washer, is now producing quality pulps in several mills. This development virtually obsoletes the need for separate washed-stock screening of most paper and all board grade pulps.

The arrangement shown can be installed for high yield Kraft and Sulphite pulps with only the screen rejects requiring refining.

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Our large presentation area will offer the latest facts on the ever-growing consumer markets for paper products. Samples of wet-strength paper products will be on display.

Again, as in the past, you will find Cyanamid Salesmen and Technical Personnel available to answer your questions. You will see how the use of chemicals imparts improved properties in paper—resulting in expanded marketing possibilities.

The Paper Chemicals Department exhibit will be open in the East Ballroom every day during TAPPI Week. Our Hospitality Suite—Room 2100 at the Hotel Commodore—will also be open for your pleasure during the entire proceedings.

CYANAMID

American Cyanamid Company
Paper Chemicals Department
30 Rockefeller Plaza, New York 20, N. Y.

Latest U.S. expansion developments

Crossett Paper Mills has completed a $1,770,000 improvement project on its lightweight kraft paper machine. Purpose: to provide a wider range of improved kraft paper products. Designed to improve quality and expand production by 15 tpd, the changes will also make possible the manufacture of new grades of lightweight kraft paper. Included in the program: new headbox, new breaker stack, four air dryers and converting size press to a new type.

Hint of another pulp mill project in British Columbia came when provincial legislature opened its 1961 sessions in Victoria and announced that government will seek authority to enter into agreements for disposal of pulpwood in working circles. One obstacle to early construction near Prince George has been difficulty in securing stable supply of wood from scores of independent loggers active in that area. The proposed legislation is designed to remove this obstacle.

H. P. Smith Paper Co. has added a new 76 in. polyethylene extrusion coater made by Egan, increasing its coating facilities to 6 production machines. All six coaters operate round the clock. Increase in facilities enables Smith to expand production of polycoated papers, films, foils, boards and fabrics.

Crown Zellerbach has a $4,500,000 improvement program nearing completion at West Linn, Ore. which includes installation of blade coating equipment on two publication grade paper machines producing paper for four-color publication use. Crown Z recently completed a $4,600,000 modernization program at Camas, Wash., and an additional $1,500,000 program is now underway. ■

Oregon governor backs proposed IP mill

PORTLAND, ORE.—International Paper Co's. proposed pulp mill near Gardiner has come a step closer to realization. Gov. Mark O. Hatfield has requested leaders of the state legislature to support a bill eliminating obstacles to construction of the new mill. The bill would authorize granting of effluent pipeline right of way across the beach into the ocean. Cost of the proposed mill has been estimated at $36- to $50,000,000. Two large lakes in the area are expected to be used as prime source of water for the plant.

Ever since International Paper bought Long-Bell lumber company several years ago, its experts on water, transportation and raw materials availability have made extensive surveys on the "highways and byways," especially in Washington and Oregon. Gardiner is one of several reportedly favorable sites.

IP's PROPOSED PULP MILL would be at Gardiner, near Oregon coast.

Maine has plenty of wood, but

liabilities include high mortality, shortage of forestry funds

AUGUSTA, ME.—Maine has more wood than any other state east of the Rockies but its liabilities may outweigh its assets, according to a survey just completed by the Northeastern Forest Experiment Station of the U.S. Forest Service.

Assets: (1) Its "more wood" totals 206,000,000 cords, including 30,443,000 bd. ft. of sawtimber. (2) Twice as much wood (4,000,000 cords) is growing annually as is being cut. (3) A high percentage of valuable softwood species, such as spruce, fir, hemlock and pine. (4) A net annual growth of all species of slightly more than 2/5 of a cord/acre/year. (5) More than 98% of the productive forest land is open to cutting.

(6) A very low average annual fire loss. In 1960, it was 1/50 of 1% of the forest acreage. (7) The average small woodlot averages 99 acres, which is greater than the national average and is an advantage in forest management. (8) About 76% of wood volume is in species that have good to excellent market demand. These species are white pine, balsam fir, spruce, yellow and white birch, sugar (hard) maple, white ash and red oak. (9) 97% of commercial forest land is at least 10% stocked with trees of commercial species. (10) 99% of net growth is suitable for pulpwood.

Maine has liabilities, too, in its forest appraisal: (1) As much volume in pole and sawtimber trees die each year from decadence, competition, and insects and disease attacks as is cut for commercial products. (2) Cut of white pine sawtimber exceeded growth by 41% in 1958, and the cut of hard hardwood sawtimber exceeded growth by almost 25%. (3) 2,500,000 acres (1/7 of commercial forest land) has less than 1½ cords of wood/acre, primarily because of excessive concentrated cutting. (4) Only 12% of the white pine sawtimber volume and 17% of hardwood sawtimber is in grade 1 logs.

(5) 44% of sawtimber volume is in trees less than 14-in. dia., and trees below 14-in. do not produce logs large enough to meet grade 1 requirements. (6) 22,000,000 cords of soft maple and aspen with few available markets. (7) Considerable volume of cull trees in

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hardwood stands in central and southern Maine. (8) An enormous reduction in value of white pine lumber because of knottiness and crookedness due to attacks of white pine weevil.

(9) Inaccessibility of many timber stands due to lack of well developed network of access roads; poor relationship between mill locations and surplus wood; cutting cycles too lengthy on millions of acres to adequately harvest timber before it is lost through natural causes and various social and economic factors. (10) The shortage, and in some cases, a complete lack of funds in Maine for research in forest management, forest economics, forest insects and diseases, forest fire control, forest soils, tree physiology, forest utilization and product development. ■

Problem: Access roads needed

to save billions of feet of timber in West from rotting in stands

VICTORIA, B.C.—Too much capital investment in timber inventory and too little in advance roads to capture the full timber potential have been cited as a matter of "local concern and a national problem." Speaking at the annual meeting of the Western Forestry & Conservation Assn., here in Victoria, John Fedkiw, of the U.S. Pacific Northwest Forest & Range Experiment Station in Portland, Ore., said that the underdevelopment of 14,000,000 acres of Douglas fir region is at stake.

"There's at least 7,000,000 acres of young timber ready for partial harvest. Of this not more than a few percent have been put under management. There are 8,000,000 acres of older timber where most of the growth is lost annually to mortality. The increased timber supply that these opportunities constitute are virtually untapped," he stated.

Opportunities for increased use through good roads in the next 40 years, he claims, is about 100 billion bd. ft. This is about 2½ billion bd. ft./year and does not include yields of live timber from thinning, prelogging or sanitation harvests, potential sources of another 100 billion bd. ft.

This means that about 150 billion bd. ft., nearly 4 billion/year in this one forest region, would be available. Actually, Forester Fedkiw stated, it would not be possible to capture all this, but studies by the experiment station show that one-quarter of this potential can be realized by advance, systematic roading of 2.5 million acres of old growth in the next 40 years. To capture just half of this potential would require advance roading of 8 million acres.

On large industrial forest properties, where roading has been pushed aggressively, rates of return as high as 10% (after taxes) have been calculated for advance road investments varying from $5,000 to $15,000 per mile. On industrial tree farms, advance roads and partial harvests can increase allowable cut by as much as 10%. ■

Bill would give $45 million for roads

PORTLAND, ORE.—More than 56 billion bd. ft. of USFS timber in five Western states (Oregon, Washington, California, Montana and Idaho) are inaccessible for harvesting because of lack of access roads. That's why 16 Western senators have lined up behind legislation pending in Washington (D.C.) to increase allowable expenditures for federal timber access roads.

Legislation introduced in the U.S. Senate would authorize spending $45 million for access roads into USFS timber starting July 1, another $62 million in 1962. Expenditures now are limited to $35 million and $40 million.

Such expenditures are returned to the treasury many times over through sales of timber. In addition to using valuable timber which would otherwise be lost, harvested areas are transformed from stands of little or no growth or value into thrifty, fast growing forests. ■

Wisconsin has more pulpwood sources

MADISON, WIS.—A leader in pulp and paper production is failing to take full advantage of its allowable timber cut. The leader is Wisconsin and in a 10 county area alone, more than 9,000,000 bd. ft. is annually unharvested, say government forestry sources.

This amount, say experts, should be cut to preserve good forestry practices. Much is pulpwood, the balance is suited to other wood-using industries. Yearly harvest of pulpwood and other products in this region, located at the state's northwestern corner, totals about 391,000 cords. An additional 220,000 cords go unharvested.

These figures were released by the Wisconsin Dept. of Resource Development, the Wisconsin Conservation Dept. and the U.S. Forest Service.

Nearly half the commercial forest land in this area, about 2,523,000 acres, is county, state or federal owned. All timber harvesting on such public lands is by private buyers. Size and duration of individual sale offerings is geared to the purchaser's requirements. About half the acreage is under sustained-yield management.

Opportunities are widespread the report says, for centralized finishing plants to serve existing sawmills, pulp mills, particle board plants and specialty product manufacturers. Estimates are that the allowable cut will double within 15 to 20 years. With only about 10% of the harvest of 391,400 cords specifically committed to existing industries, there is obviously much to offer manufacturers seeking additional sources of wood.

There are now two pulp-paper mills in the region. These, with a combined daily capacity of 150 tons, are at Ladysmith (Peavey Paper Mills Inc.), and at Park Falls (Kansas City Star Co.). ■

POWELLFUL PERFORMANCE!

Pulp and paper mills throughout the country have long used Powell valves because of their proven resistance to corrosion, erosion, heat and wear in controlling the flow of acids, alkalies, organic solvents and gases, and in other pulp and paper mill services.

Powell Valves are available in many metals and special alloys to handle every need of the paper making industry. Also—Powell makes Digester Valves—on special order—for introducing wood chips into the digester, and for handling the flow of the digested pulp from the digester.

For complete information, contact the Powell valve distributor in your city or The Wm. Powell Company. Let Powell's 115 years of industrial valve manufacturing experience go to work for you.

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POWELL PAPER MILL VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

Sees growth in pulping of cedar

VANCOUVER, B.C.—Don't sell cedar short as a pulping material. Because of its abundance in some areas it could some day come into its own, says Dr. J. A. F. Gardner, head of the wood chemistry section, Forestry Forest Products Laboratory of Canada.

Cedar has been in a slump in the past few months on the West Coast and most pulp mill operators regard cedar somewhat disdainfully, particularly in comparing its properties with those of spruce, hemlock and fir. But Dr. Gardner says that with more research, cedar may become one of the most important bases of some grades of pulp.

Poor pulp color inhibits use of cedar in sulfite pulping. Dark color of the heartwood has prevented its use in groundwood. But cedar does yield a good kraft pulp. Its bursting strength is as good if not better than hemlock kraft pulp; it has adequate bursting strength and fiber dimensions that insure uniformity. These advantages, says Dr. Gardner, give cedar an advantage for some uses over Douglas fir pulp which has lower bursting strength but higher tear.

"The complementary relationship of Douglas fir pulp strength properties mean that cedar pulp is very useful for blending with fir pulp to provide a mixed pulp of approximate hemlock quality. This and the availability of cedar have caused a gradual increase in the use of cedar in kraft pulping in recent years despite processing difficulties.

Most serious difficulty which discourages greater use of cedar is the low density of the wood. Digester yield is thus only about 75% of a hemlock digester. Another problem is the peculiar ability of cedar to accelerate corrosion of the steel kraft mill digester.

"Several kraft mills on the Pacific Coast are using up to 15% to 20% cedar in their chips. Further increases can be expected. The use of continuous digesters in future mills will reduce the yield difficulty and justify use of stainless steel and other alloys to prevent corrosion. Further, chemical research on cedar has shown how to reduce corrosion and should give other means to improve the pulp picture.

"Extractives in cedar account for the obvious differences, apart from density and strength, between cedar, fir and hemlock wood. Thus the useful properties of cedar such as high decay resistance, excellent printability, characteristic aroma and color, good dimensional stability and troublesome properties such as corrosion of steel are all due to the extractives," said Dr. Gardner. ■

"Save company records," pleads group

ST. PAUL, MINN.—Don't throw away those old company documents and don't scrap that obsolete machinery and equipment. Historians may be eager to get these as part of the permanent record of the forest industry now being developed in some of the continent's more important wood harvesting areas.

The Forest History Society, Inc., is appealing to all associated with forest industries, especially companies, to be on the alert for the type of material that could be of lasting value in the archives.

"What we are afraid of and what we know to be true, is that many old-timers are going around with much unrecorded history in their heads," says Elwood R. Maunder, director of the society. "The tragedy is that so much of this history is being lost because its value is never fully recognized."

Other sources say that forest history is being made so rapidly that few people pause to realize its significance.

An important source of historical material is the early files of forest industry companies. It is in these files that the true history of the industry was written, although it would require extensive research to make it usable. But such research does yield rich treasure, say the historians. ■

Pulp production up 4% in 1960

as overall exports rose 81%; biggest gain of 158% to Asia, Africa

NEW YORK—Although domestic market pulp sales were down about 5% in 1960, shipments to overseas markets climbed from 627,739 tons in 1959 to 1,137,447 tons in 1960. Shipments to Canada were 56,043 in 1960 vs. 54,685 in 1959, a 2% increase.

The biggest story of course, as PULP & PAPER has previously reported, has been in overseas sales of market pulp. Shipments to Latin America were up 36%, moving from 100,212 tons to 136,167 tons. Europe asked for 86% more pulp, taking 704,135 tons instead of 379,433 it bought in 1959. Tonnagewise, this is the biggest gain in consumption. U.S. market pulp producers sold 241,102 tons to Asia, Africa and Pacific compared to 93,409 in 1959.

Market pulp inventory was up 5% at the end of December on January 1.

Total pulp production in 1960 was 25,160,735 tons compared to 24,290,413 in 1959.

Britain was the best customer for U.S.A. pulp overseas, but West Germany and France were also important.

PULP & PAPER's editors in Europe are skeptical whether Europe can keep up its fantastic 1960 and even present pace of increasing paper production at a rate of 10 to 15%. But an ever growing demand—even if not at such a high rate in the next year or two—will go far toward easing the pains of what would have been a heavy oversupply of U.S.A. market pulp.

Overseas sales helped U.S. pulp producers operate at 90% capacity. ■

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NEW EQUIPMENT

Pentiometer called "scientific breakthrough"

PHILADELPHIA—A new type high precision measuring and recording device which is considered "revolutionary in concept" has been developed for industrial process variables.

The instrument, which in most instances can be used to control variables too, is called the ElectroniK 17 and incorporates an extremely accurate, trouble-free electro-mechanical strain gauge as a rebalancing element. The unit is expected to open a new era in industrial precision measurement and recording. In eliminating conventional slidewire, infinite resolution is achieved for first time in a potentiometer. Unit can be mounted in a standard 19-in. relay rack, on a panel or bench, or made portable. It consists of single pen strip and circular chart recorders and a circular scale indicator, each with or without control.

First-time features include (1) Isolation of all critical components within electrical shield, thus rejecting stray signals that cause recording errors and affect dynamics of the instrument, (2) one true reference junction compensation for all types thermocouple actuation, and (3) transistorized plug-in control units up to a max. of eight set points for auxiliary or zone control. Any combination of these can be supplied as original equipment or modified as required by the user.

"Heart" of the ElectroniK 17 is Stranducer that varies output potentials of measuring circuit to balance input signal from process variable.

Four pre-stressed looped wire strands enclosed in an I-shape frame form variable resistance legs of measuring circuit. Their resistance varies in proportion to tension applied. Stranducer, says the manufacturer, has none of the limitations of slidewires: mechanical wear, limited resolution and bounce (which occurs in instruments operating at high speeds).

Other unique features: amplifying system providing critical damping and optimum response for high-impedance actuations; thermally-compensated electrical networks to minimize ero shift due to temperature change; cascaded zener diode network providing constant current to measuring circuit and eliminating need for periodic standardization; new plug-in converter, and modular construction.

Big factor in making the ElectroniK 17 a universal recorder for both temperature and non-temperature applications are the two amplifiers—one solid state and the other with vacuum tubes and transistors to use the advantages of both. Both are interchangeable with plug-in connections.

Modular construction gives the potentiometer flexibility

and versatility. Each module is a complete interchangeable assembly or sub-assembly. Measuring circuit can be changed for different ranges or actuations by substitution of range cards and actuation boards. Drawer-type chassis, with its wiring drawbridge, can be pulled out for adjustment or service without disrupting operation.

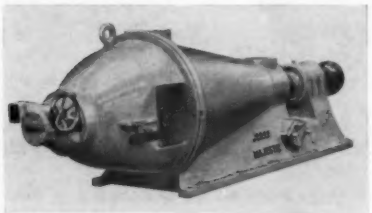
Front (or display) module is easily removed and replaced, depending on the model, with a strip or circular chart recorder or circular scale indicator.

Specifications: Input impedance of the input circuit and voltage amplifier is in excess of 100,000 ohms. It can thus readily handle source impedances of 50,000 ohms. Calibrated accuracy of the ElectroniK 17 is ½%. Strip chart instruments have pen speeds of 1, 5 and 15 sec. Those for circular chart instruments are 5 and 15 sec.

Supplier: **Brown instrument div., Minneapolis-Honeywell Regulator Co. (George Stauter), Wayne & Windrim Aves., Philadelphia 44, Pa., Tel.: MIchigan 4-8300.**

Jordan

. . . wide stock range



Applications: For refining paper stock, controlling fiber length.

Advantages: Jones Majestic will process widest possible variety of stock—from fine grades to rough board.

Specifications: Depending on type of stock being processed and its ultimate use, unit's daily refining capacity varies from 100 to 250 tons. It employs same integral Adapta-Plug, shaft and Accru-Set control assembly found in other Jones jordans, removable as unit for faster, easier maintenance.

Supplier: **E. D. Jones Corp., Pittsfield, Mass.; and Alexander Fleck Ltd., 75 Spencer St., Ottawa, Canada.**

Hardwood flooring

. . . for trucks, trailers

Applications: To avoid damage to paper and paper products in shipment.

Advantages: Heavy-duty laminated flooring is said to offer substantial savings in installation and maintenance. Extra durability and serviceability gained with edge-grain surface of Bruce Dura-Wood. Cutting, matching and joining random-length boards over stringers is eliminated, as are waste from cuttings **turn to p. 76**

REMEMBER COLLAR BUTTONS?

NOW **PARKER** HAS ELIMINATED A MORE SERIOUS ANNOYANCE ...LOST TUBE FITTING FERRULES!

A simple change in the design of Parker "Intru-lok®," the positive, bite-type Parker fitting for copper, aluminum or plastic tubing, has solved an age-old problem.

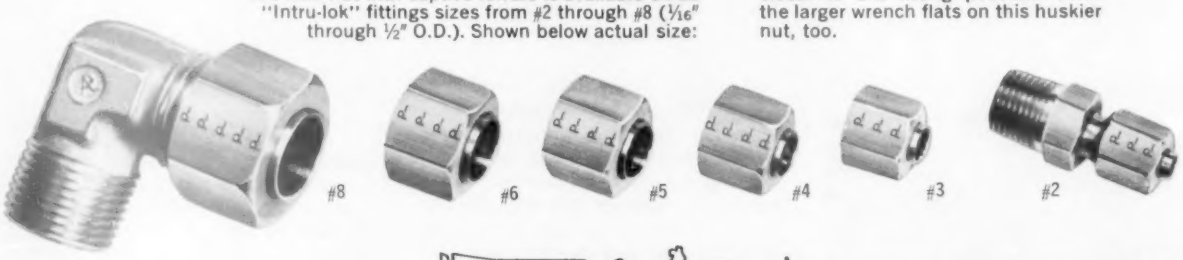
Small three- and four-piece tube fittings have long been a pain in the neck on applications where it is necessary to remove the nut from the fitting. The ferrule(s) fall out and promptly disappear. If and when found, they often get put in backwards. Sometimes they never get put back at all. Result, in either case: a leaking joint.

Now Parker has developed a snap-in, captive ferrule for "Intru-lok." You can take it out of the nut, "on purpose," but you can't drop it out accidentally.

You get all the leakproof safety of a three-piece fitting with positive "bite." You also get the convenience, the quick, easy assembly of a two-piece fitting. The easiest fitting to install has been made even easier. Write for new "Intru-lok" dimensions and prices today.

Three "detents" hold the "tail" of the new ferrule in the nut. Also, the larger hole in the nut makes tube bends closer to the fitting possible. Note the larger wrench flats on this huskier nut, too.

The new nut with captive ferrule is available on all "Intru-lok" fittings sizes from #2 through #8 (1/16" through 1/2" O.D.). Shown below actual size:



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Perkins-Goodwin elects new officers

NEW YORK—The board of directors of Perkins-Goodwin Co. announces these changes: Louis Calder Jr., president, has also been elected treasurer; Richard T. Trelfa, executive vice president; John I. Haney, vice president and a director; John L. Quackenbush, manager of the Chicago office, vice president.

Stanford G. Blankinship has resigned as vice president, but continues as a director and consultant.

Headquarters of the company were moved in January to the 25th floor, 1 Rockefeller Plaza, New York, N. Y.

Calder

Trelfa

Haney

Quackenbush

John Walden Killed in air crash

We are finding there are still many friends of John Walden in this industry who have not learned that he was aboard the TWA Constellation which crashed on Staten Island, New York, after colliding with a United Air Lines Jet. Columns were filled with names of the 134 who died in the worst air disaster in history and it is little wonder that many of John's friends are still hearing about it.

This industry lost a very fine representative, a still young man. In his years as purchasing director at the Standard Paper Mfg. Co. of Richmond, Virginia, and later as a woodpulp sales representative, he had many friends in many parts of the United States and Europe.

It would be very wrong to draw any conclusions from this about dangers of air travel for many men in this industry, any more than the risks they face in trains and cars. But it is a shock to all of us when good men are lost in this way.

STRICTLY PERSONAL . . .

East

Greiveldinger

Pease

J. P. Greiveldinger, former mgr. of manufacturing engineering at Continental Can Co.'s Fibre Drum & Corrugated Box div., takes over as eastern district gen. mgr. of the new Corrugated Container div. District includes corrugated box plants in Boston; Portland, Maine; Philadelphia, and Teterboro, N. J. Mgr. of manufacturing engineering for the new division is **N. A. Pease.**

Frederick M. Jennings has been named to new post of manager of pulp sales, Riegel Paper Corp. **R. L. Hoff** continues as asst. manager, pulp sales. . . . **George E. Oakley,** asst. mgr., paperboard sales, advances to mgr. . . .

Charles E. Crossland becomes resident secretary, the U. of Maine Pulp & Paper Foundation to succeed **James A. Gannett,** who has retired after seven years in the post. Mr. Crossland continues as administrative vice pres. for the university.

Scott Promotes Four in Wisconsin, New York

Promotion of four men to newly created posts at plants in Marinette and Oconto Falls, Wis., and in Fort Edward, N. Y., has been reported by Scott Paper Co.

D. J. Dughie, Marinette plant mgr., becomes Wisconsin mills gen. mgr. His added responsibilities include the Oconto Falls mill. Mr. Dughie has served in managerial positions at Scott plants in Pennsylvania, Wisconsin and New York.

Walter C. Miller replaces **William J. Gehlen** as Fort Edward, N. Y. plant mgr. Mr. Miller was formerly plant mgr. at Oconto Falls and joined the firm in 1948 as an engineer with Coos Bay Pulp Corp., a Scott subsidiary in Coos Bay, Wash. He was named Anacortes, Wash. plant mgr. in 1955.

Robert W. Johnson, purchasing agent and traffic mgr., becomes gen. supt. at Oconto Falls. He serves as operating head of the mill and reports directly to Mr. Dughie.

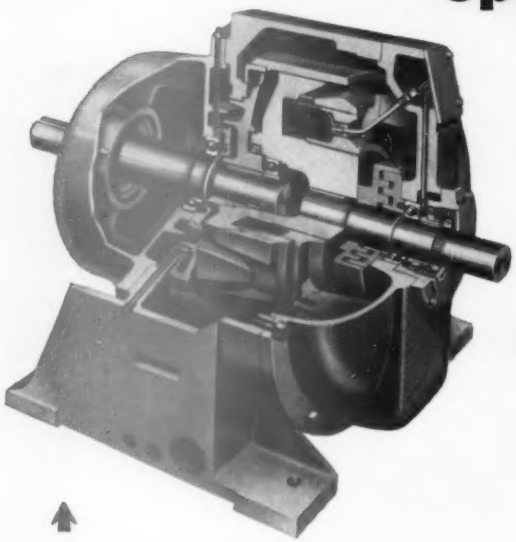
Armand M. Giguere, Marinette production mgr., is named gen. supt. He joined Scott in 1948 as plant engineer at Fort Edward, in 1952 was named to a similar position at Marinette and in 1957 became production mgr. at that plant.

Gunnar Brondmo Made Keyes Fibre Co. Industrial Engineer

He is a native of Norway and graduate of Massachusetts Institute of Technology. He comes to the Waterville, Maine firm from Scott Paper Co. Mr. Brondmo received basic technical training at Schou's Institute of Technology prior to coming to the United States.

Theodore H. Geiger, is now staff administrator, research dept., Oxford Paper Co., according to **Harold M. Annis,** vice president of research . . . **turn to p. 80**

The BEST Solution to Difficult Speed Control Problems—

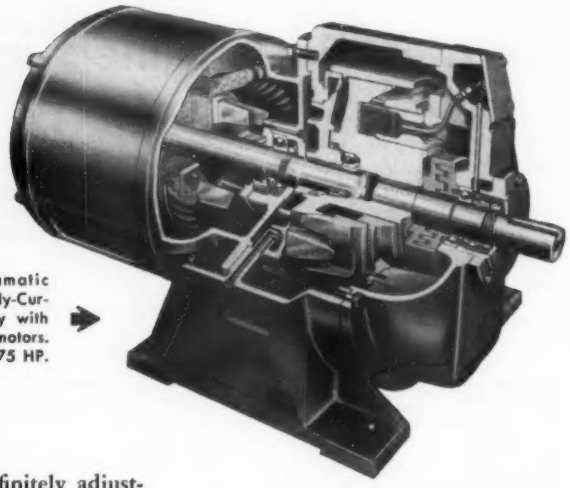


Dynamatic Liquid-Cooled Couplings provide infinitely adjustable speeds for nearly every application from 3 to 75 HP. Note the absence of slip rings, brushes, and commutators. Heavy-duty types with capacities up to 5,000 HP are also available.

EATON

DYNAMATIC®

LIQUID-COOLED EDDY-CURRENT COUPLINGS and DRIVES



"Dynaspede" Drives are Dynamatic Liquid-Cooled, Stationary-Field Eddy-Current Couplings mounted integrally with standard, D-flange, squirrel cage motors. Available in capacities from 3 to 75 HP.

Here's Why—

Dynamatic Liquid-Cooled Couplings and Drives provide infinitely adjustable speed from a constant speed source—or constant speed from a variable speed source. They operate on standard alternating current. Rotary power is transmitted through the coupling by an electromagnetic reaction between the driving and driven members of the unit—there is no mechanical contact of rotating members to cause wear and require adjustment or replacement.

A wide range of standard and special control features may be obtained from a remotely-mounted electronic control system. Infinite speed adjustment, constant speed control, on-off clutch control, torque limit, acceleration control, inching, and threading are a few of the many functions available. The addition of an eddy-current brake to standard couplings or drives provides smooth, cushioned stops and controlled deceleration.

Liquid-Cooled Dynamatic Couplings and Drives deliver more horsepower than other types of the same physical size, thus conserving space in a busy machine area. Efficient heat dissipation permits continued operation at low speeds, or stall with full load.

Completely enclosed, Dynamatic liquid-cooled units are protected from dust, dirt, and other atmospheric impurities. Dynamatic design involves no brushes or slip rings; there is no possibility of arcing. With simple modification these units can be made explosion-resistant for hazardous applications.

Infinitely Adjustable Speeds from AC Power

★

Full-Torque Starts

★

Wide Range of Control Functions

★

No Slip Rings, Brushes or Commutators

★

Completely Enclosed Design

★

Low-Cost Maintenance

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EATON — DYNAMATIC DIVISION — MANUFACTURING COMPANY

MEETINGS

. . . March

William B. Greeley Lectures in Industrial Forestry, Univ. of Washington, Seattle —March 2-4

Chicago Section TAPPI (Development of plastics as a packaging medium), (Chicago Bar Assn., 29 S. LaSalle St., Chicago—March 7

Labor-Management Safety Conference 15th Annual meeting), Sheraton Palace Hotel, San Francisco, Cal.—Mar. 15-17

Annual Short Course for superintendents and operators of water and sewerage systems, Louisiana State U., Baton Rouge, La.—March 15-17

Folding Paper Box Assn. of America (annual meeting), Drake Hotel, Chicago—Mar. 20-22

Pacific Section TAPPI (Shibley Award meeting), Longview, Wash.—March 21

Northwestern Div. PIMA, Wisconsin Rapids, Wis.—March 23

National Paper Trade Assn. (Annual meeting), Waldorf-Astoria Hotel, New York, N. Y.—March 26-29

Miami Valley Div. PIMA, Springfield Country Club, Springfield, Ohio—March 30

. . . April

Louisiana State Univ. Tenth Annual Forestry Symposium, Baton Rouge, La. April 6-7

. . . May

TAPPI Coating Conference, Statler Hilton Hotel, Buffalo, N.Y.—May 8-10

Pulp & Paper Instrumentation Symposium (Sponsored jointly by TAPPI and the Instrument Society of America), Northland Hotel, Green Bay, Wis.—May 10-12

National Paperboard Assn., The Fairmont Hotel, San Francisco, Cal.—May 10-12

Institute of Paper Chemistry Executives' Conference, Institute of Paper Chemistry, Appleton, Wis.—May 25-26

. . . June

PIMA National Meeting, Hotel Robert Meyer, Jacksonville, Fla.—June 7-9

. . . September

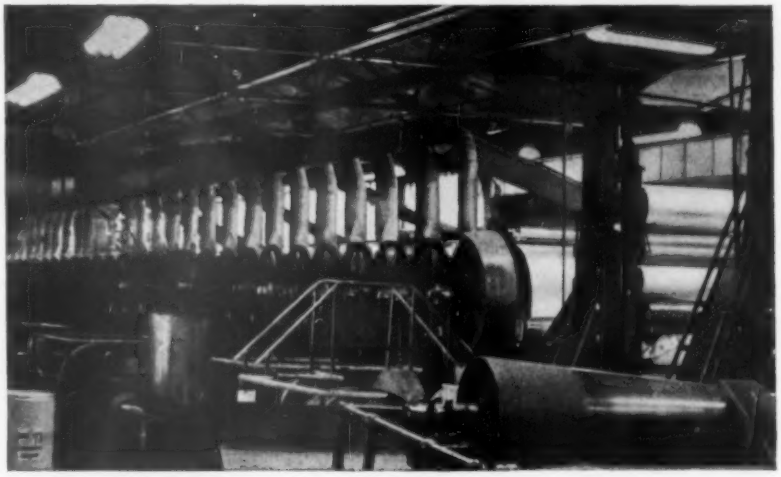
British Paper and Board Makers Assn., International Fiber Bonding Symposium, Oxford, England—Sept. 25-29

. . . October

TAPPI (USA), Annual Engineering Conference, Shoreham Hotel, Washington, D. C.—Oct. 15-19

TAPPI (USA), Annual Alkaline Pulping Conference, Rice Hotel, Houston, Texas—Nov. 1-13

HAGAFILM® UPS HEAT TRANSFER IN DRYER ROLLS, REDUCES CORROSION BY 99% at Fibreboard Paper Products Corp.



Quick case history—recding time 83 seconds

THE PLANT: The Sumner Mill of Fibreboard Paper Products Corp. is a prime producer of paperboard shipping containers. Plant operators know that optimum efficiency is a real requisite in the growing Northwest area.

THE PROBLEM: Corrosion and deposition in the plant condensate system was leading to excessive heat losses, equipment outages, pipe and trap replacements. Reduced heat transfer in the sixty-three dryer rolls forced annual chemical cleaning. As determined by test specimens, corrosion was occurring at the serious rate of 80 mg/dm²/day, and the destructive culprits were found to be oxygen and carbon dioxide dissolved in the condensate.

THE SOLUTION: Hagafilm was the ideal remedy. Not only does Hagafilm form a non-wettable, protective film throughout the system, but it also cleans out old deposits. As a result, it promotes drop-wise condensation, extremely desirable on heat transfer surfaces such as dryer rolls.

RESULTS: Corrosion in the system has been reduced by 99% and is now negligible (0.8 mg/dm²/day). Iron oxide deposits in the boiler have been eliminated. Trap cleaning and replacement have been substantially reduced. Temperature drops through the walls of the dryer rolls have been reduced from 15-20°F to 5°F which is normal for clean rolls. Annual cleaning costs have been eliminated.

FOR FULL INFORMATION on how Hagafilm can solve your corrosion problem safely, quickly and economically, write for bulletin 410-12-7 or contact:

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HAGAN BUILDING, PITTSBURGH 30, PA.

HAGAN DIVISIONS: CALGON CO.– HALL LABORATORIES– BRUNER CORP.

TGS....

RAIL AND WATER SHIPMENTS

In order to better serve our far-flung customers in the process industries, we have developed at Beaumont, Texas the most modern Sulphur storage, handling and loading facilities in the world. This terminal and shipping center is now receiving deliveries from all four major TGS properties in Texas: Spindletop, Moss Bluff, Newgulf, and Fannett - the most recent mine to be developed.

.... is now operating at **Beaumont, Texas**

THE WORLD'S NEWEST SULPHUR TERMINAL

... for Solid Sulphur

... for Molten Sulphur

A few of the design features of this terminal may be of interest:

- **It receives, stores, and loads both solid and molten sulphur.**
- **It can load simultaneously 1 dry cargo ship of 20,000 tons capacity, 3 molten sulphur barges and 1 molten sulphur tanker. There's a holding dock where a second cargo ship can be tied up. The barge basin will accommodate 12 sulphur barges.**
- **Storage capacity totals 31,000 tons for molten sulphur and 1,000,000 tons for solid sulphur. Loading capacity for molten sulphur ranges up to 3,000 tons/hour, tanker and barge simultaneously; for solid sulphur the loading capacity is 1,200 tons/hour into ship or barge.**

This development at Beaumont is but another step in the broadening delivery service program now being carried out by TGS. Regional distribution centers, handling molten sulphur, are already in operation at Cincinnati, St. Louis and Tampa. Coinciding with the full operation of our main terminal at Beaumont will be the opening early in 1961 of two coastal terminals at Carteret, New Jersey, (26,000 tons molten sulphur storage) and Norfolk, Virginia (20,000 tons). Other terminals are in the planning stage.

TEXAS GULF SULPHUR COMPANY
75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas
Sulphur Producing Units: **Newgulf, Texas • Spindletop, Texas Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada.**

Another Mount Vernon Dryer Felt Success Story . . .

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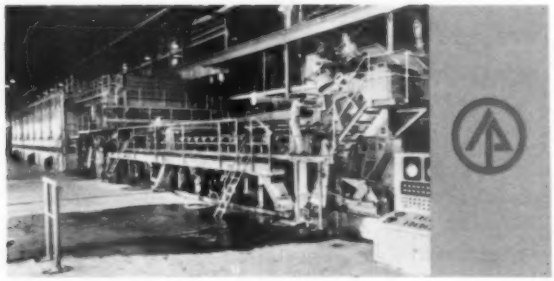
Heavy-Duty Pneumatic Reel, No. 3 Machine, International Paper Co., Southern Kraft Division, Pine Bluff, Arkansas S. K. CHRISTENSEN

International Paper Company

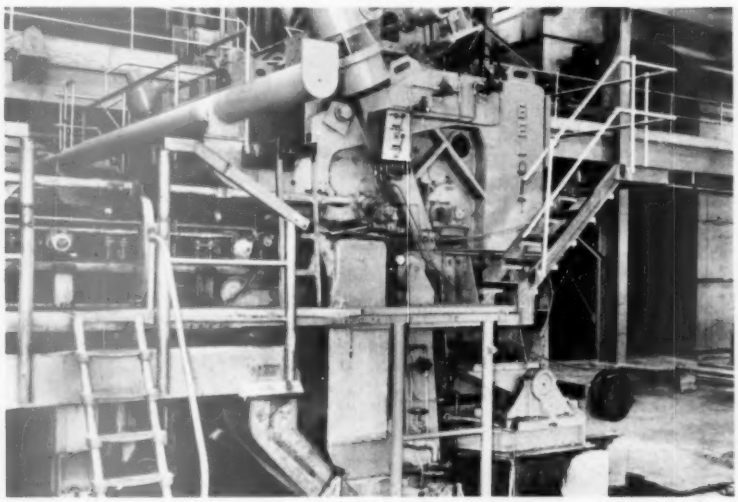


Southern Kraft Division, Pine Bluff, Arkansas

Pine Bluff's new 209" Fourdrinier paper machine is equipped to manufacture newsprint and directory paper to meet the expanding demand for these grades in the South. This is the third Beloit machine in operation at Pine Bluff. The first two machines began operation in mid-1958, producing newsprint and bleached kraft paperboard. For further views of the new machine, please turn the page.

...some views of the new 209" Beloit Fourdrinier paper machine at Pine Bluff

(a) Beloit patented air-cushioned controlled-flow inlet showing a portion of the cantilever-type Fourdrinier. Design speed of this machine is 2000 fpm. (b) Twin open side Beloit calender stacks. The stacks are equipped with patented nip relief arrangement. (c) International Paper Company's Pine Bluff Mill. The new machine room is situated at left foreground. (d) Beloit Eastern Corporation 6000 fpm Model L Winder and heavy-duty unwind stand. (e) Twinver press arrangement; other press features include automatic suction pick-up and third suction press.



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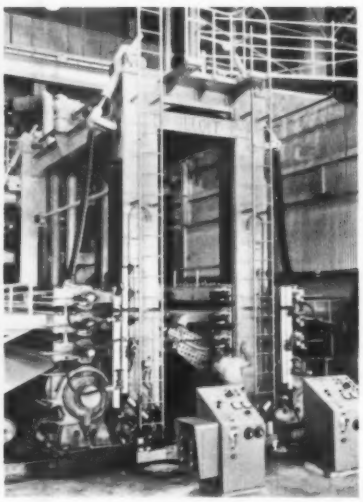

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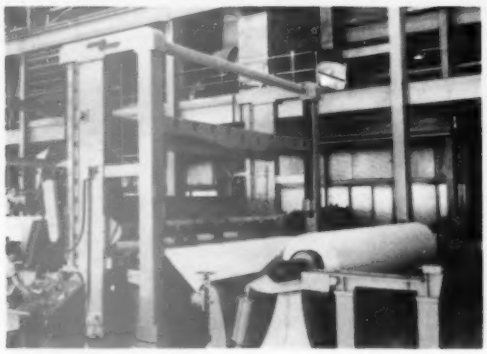

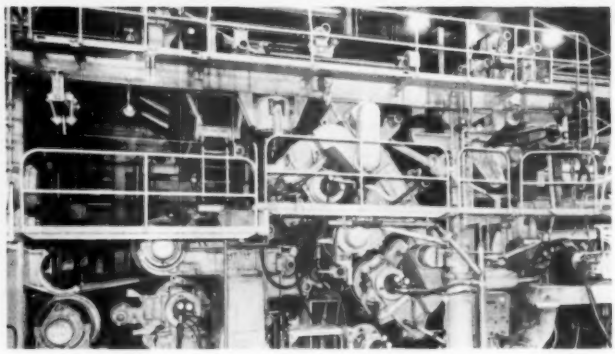

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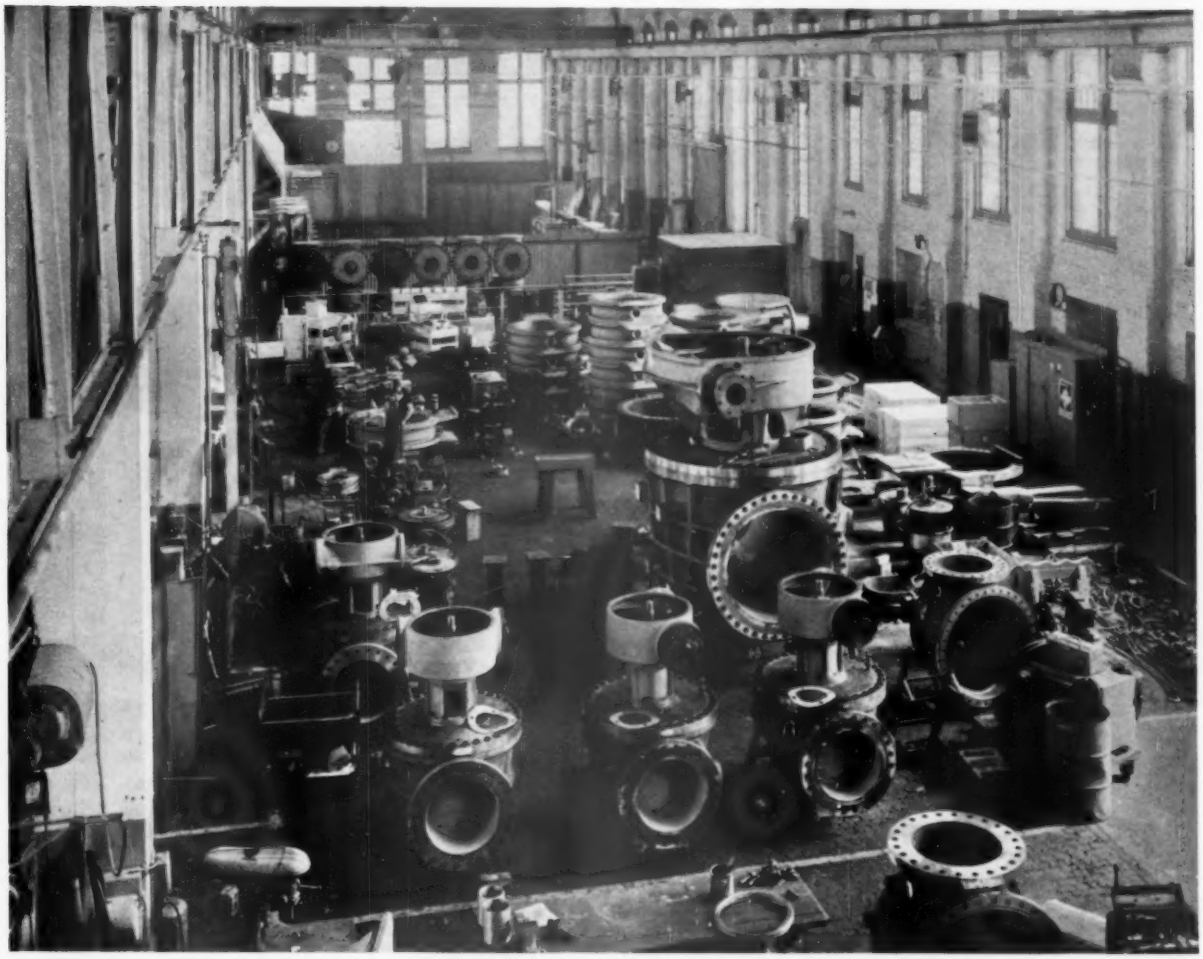

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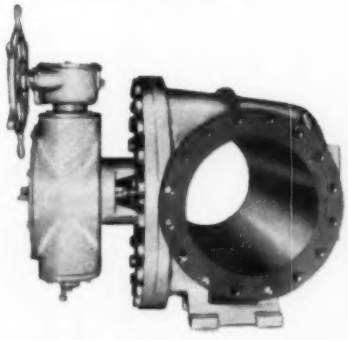

The ROTOVALVE is probably your best all-round buy in a valve. Wide open it has no more resistance to flow than a straight piece of pipe of equivalent length. Actually seats itself tighter with use. *Rotovalve* is an Allis-Chalmers trademark.

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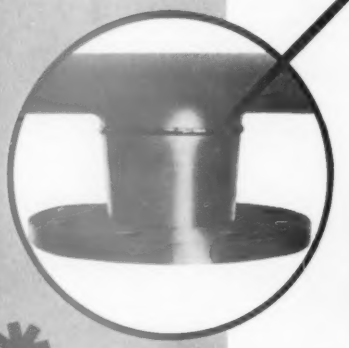

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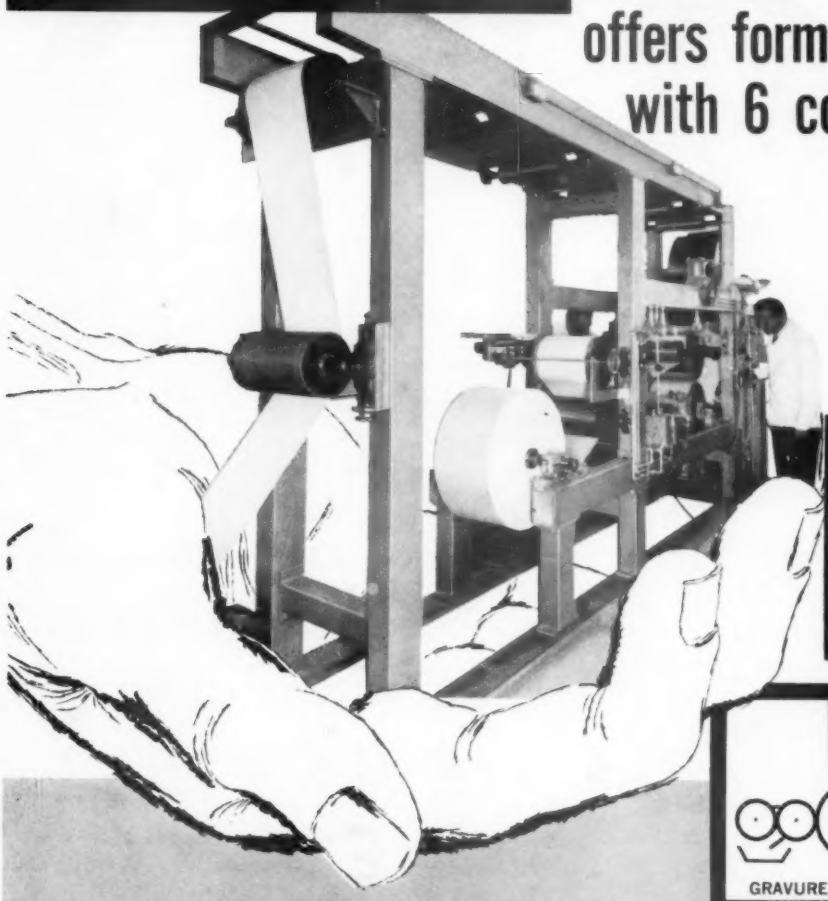

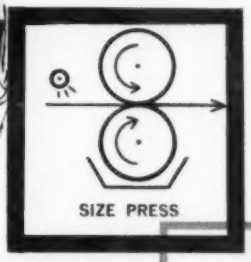

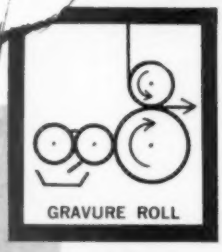

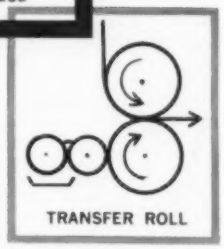

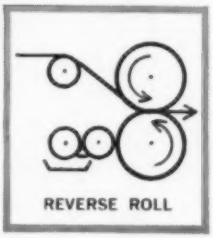

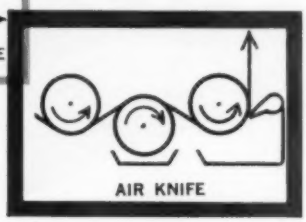

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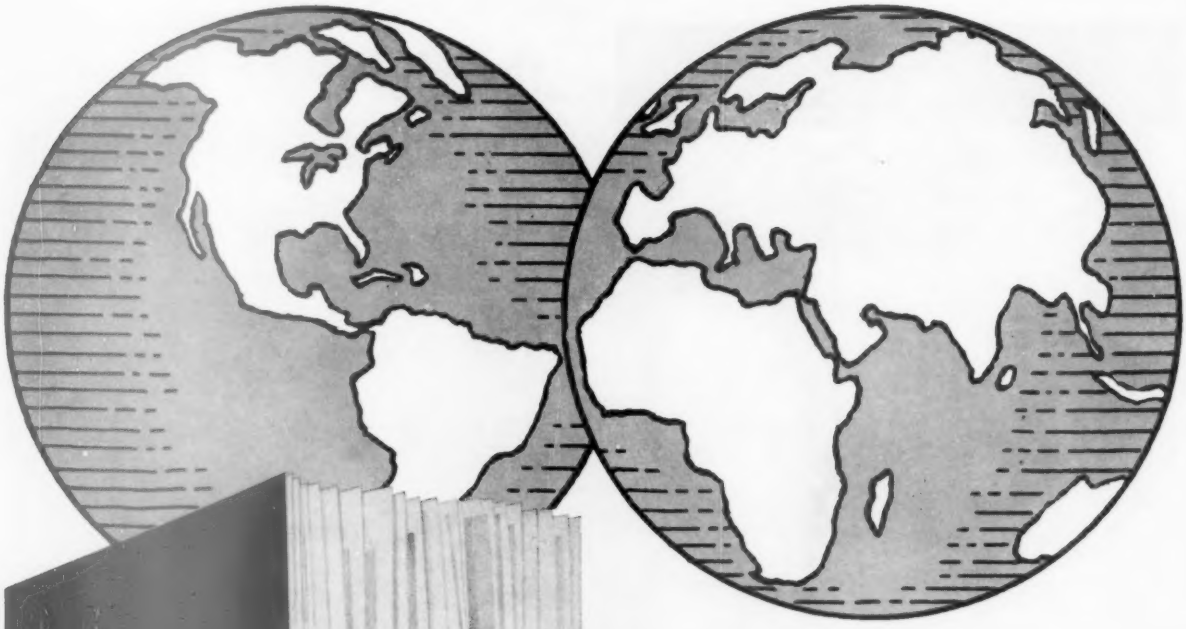

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We shall be pleased to send you a free copy of "Growing with the Paper Industry Since 1853." Address your request to any of our offices listed below.

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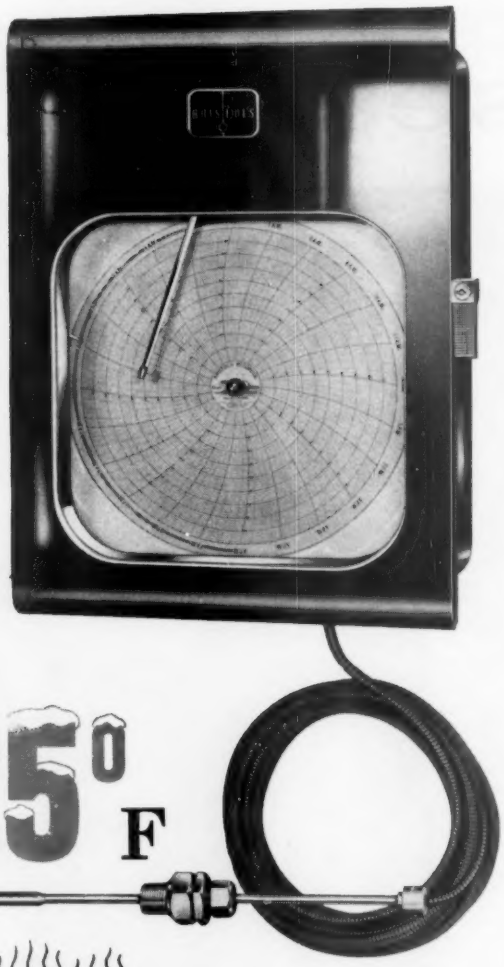

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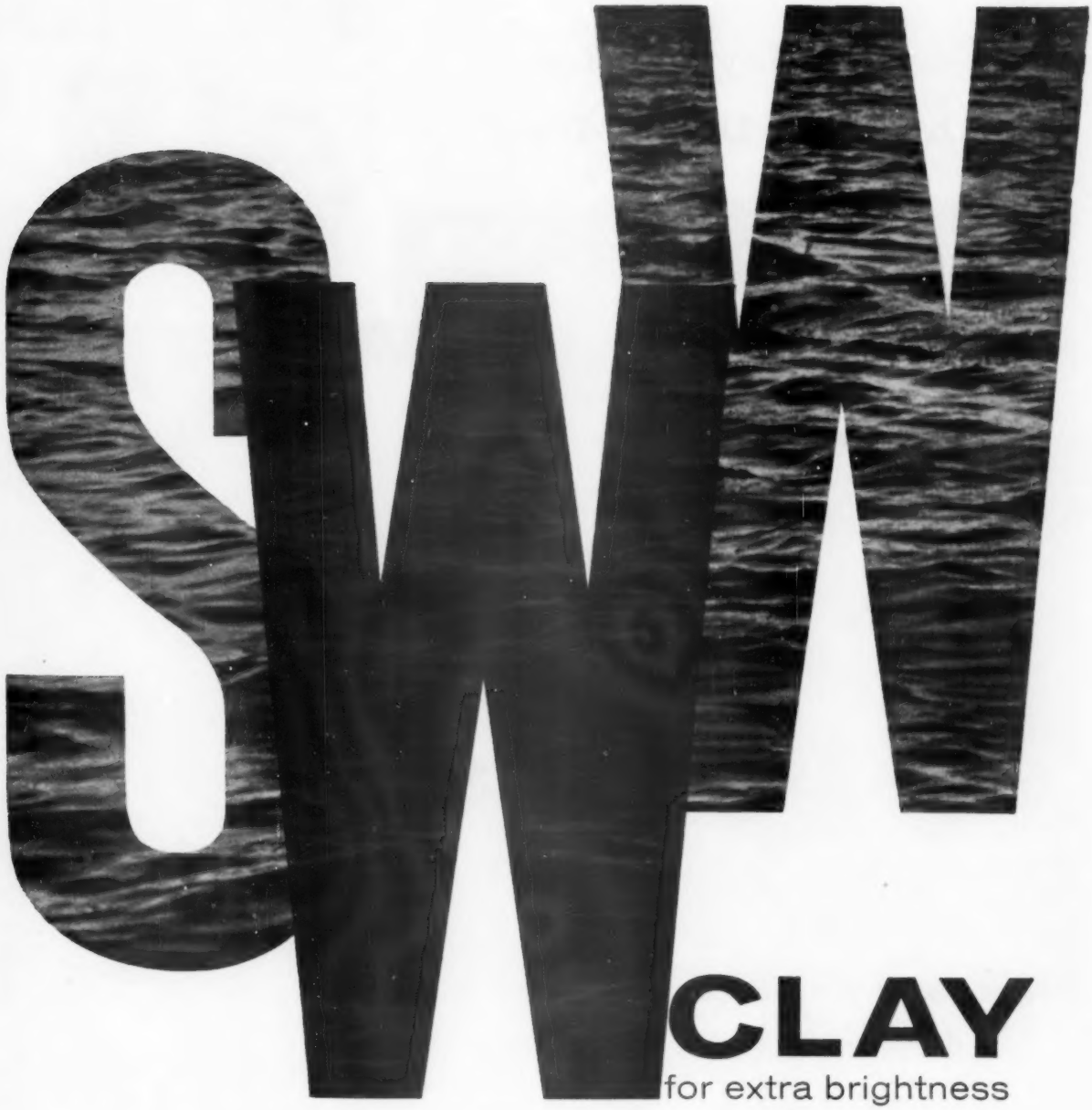

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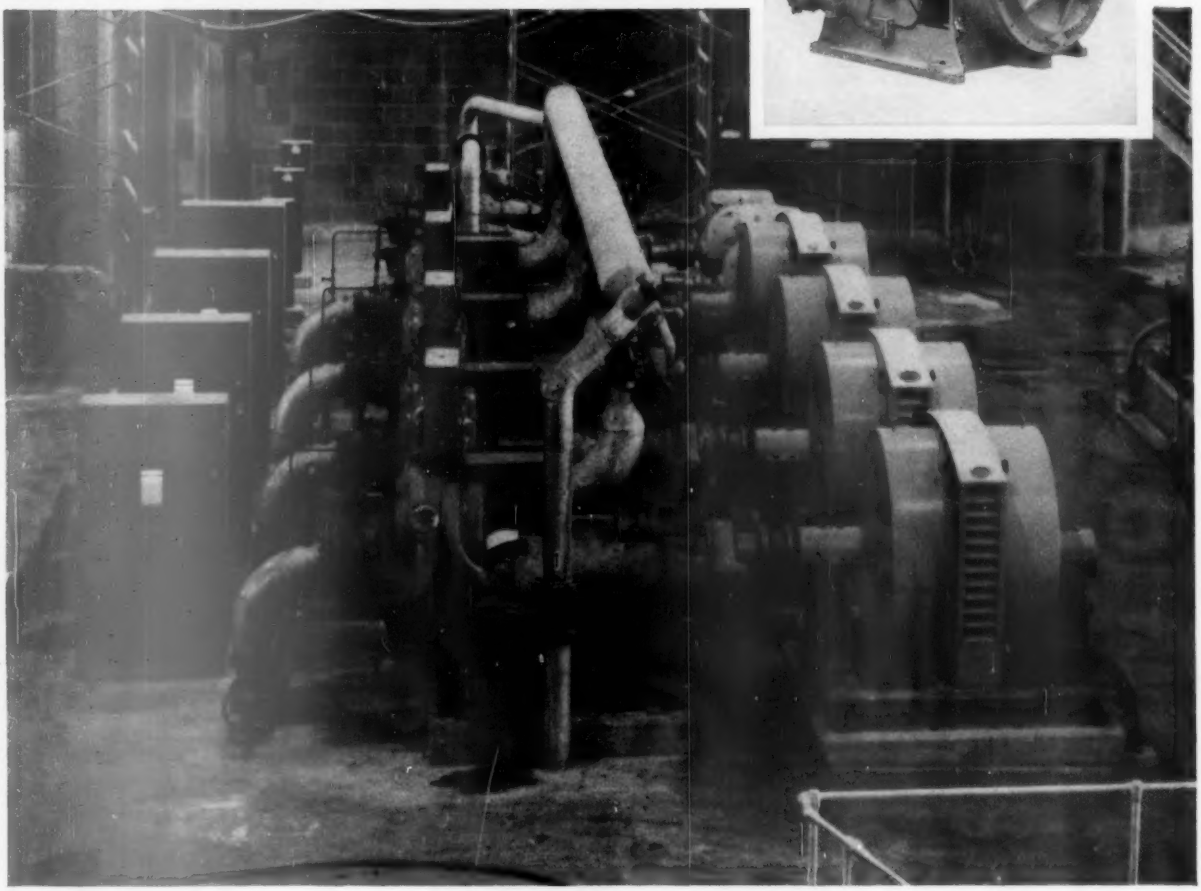
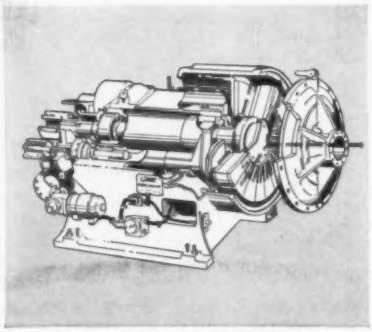


. . . at International's Pine Bluff Mill

Production schedules at International's Pine Bluff Mill call for over 500 tons of quality foodboard stock per day — from one 300" Beloit machine. Helping to make this tonnage possible is an efficient battery of four Jones Double-D's operating in parallel for primary refining. Each unit is driven by a 600 HP motor. Working continuously since the mill was put in operation, *each Double-D has been processing approximately 140 tons per day . . . for an outstanding performance rating of only 4.4 HP days per ton* to accomplish almost two thirds of the total primary refining. Important, too, is the fact that Jones Double-D's save on floor space — since each does the work of two ordinary single disc machines.

The experience at International is typical of Jones Double-D's efficiency in many mills. Why not get high production at low HP days per ton — with less floor space in your mills, too? For full details write to E. D. Jones Corporation, Pittsfield, Massachusetts, for Bulletin EDJ-1083.



With Jones Double-D's, stock under pressure passes between two single-faced stationary discs and one (center) double-faced rotating disc. This results in precision controlled two stage refining.

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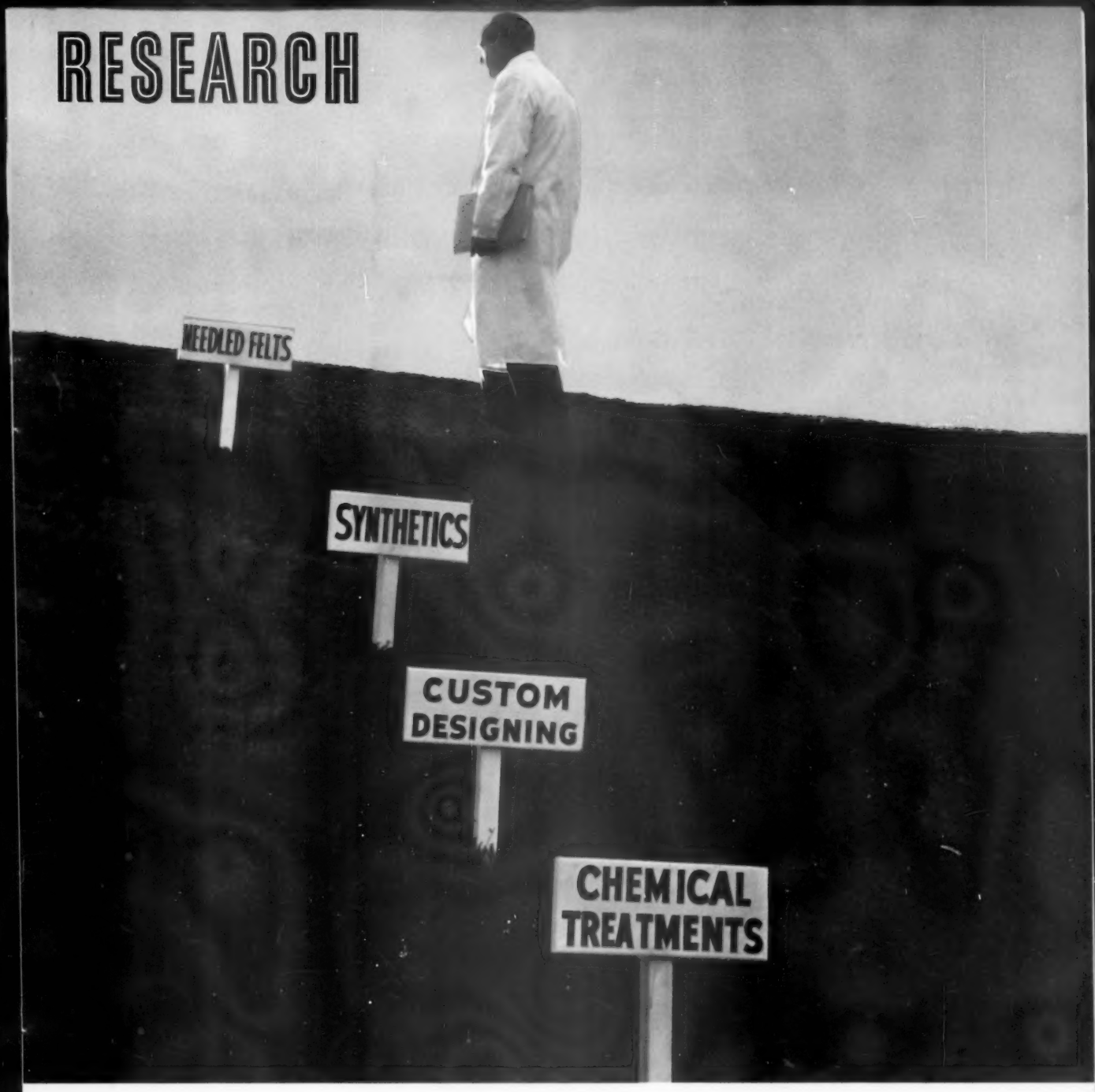

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Supervision Methods . .

FACING "JURY OF HIS PEERS" typical supervisor at Keyes Fibre answers questions pertaining to a supervision problem he has solved. His solution is subject to cross-examination and criticism, as are decisions of all others in unique group.

"Incident Process"

An effective and challenging means of teaching men how to handle "hot" personnel problems, keeping them alert once they have learned it . . .

SUPERVISING PERSONNEL is perhaps the toughest job in paper-making today. The so-called "natural born leader" is as rare as the whooping crane and most administrators learn either by experience or trial-and-error. Either can be dangerous when handling touchy situations, "hot" issues, labor relations and other nebulous headaches that pop up in any large plant with uncomfortable regularity.

The job, however, is not hopeless. What it requires is continuous training and refreshing. And at least one paper company, Keyes Fibre Co. in Maine, has found what it feels is the answer to the problem. Their system is the "Incident Process," not new to industry but just catching on.

The Incident Process can be painful to its constituents since it has as its basis group criticism of supervision methods. But since everyone in this group sooner or later finds himself under the gun, its merits far outdistance its drawbacks.

Frank and open discussion is the basis of the process. Its goal: To get a group of people in supervisory jobs together and promote free-swinging talks in which these men let their hair down and say things they ordinarily would keep to themselves.

The ultimate purpose is to improve the management or problem-solving skills of all participants. This type of session was repeated week after week at Keyes Fibre until four different groups had gone through five training sessions. People quickly exposed themselves to criticism and engaged in frank and open discussion of touchy problems.

Process is a 5-step technique in which a problem situation or case is first presented to the group in briefest outline. This usually involves some sort of a personal conflict. Little or no detail is given and the incident is presented in a paragraph. Each member of the group is given a copy and a few minutes to look it over and become as oriented as possible before the discussion begins.

Step two is the fact-finding phase in which all members of the study group ask direct questions of the leader presenting the incident. This phase continues until the group has ferreted out available pertinent facts.

In the third step, the issues to be

DIRECTED BY DISCUSSION LEADER, supervisory group at Keyes Fibre thrashes out an actual personnel "incident" to determine whether it was handled correctly or could have been dealt with more effectively in another manner.

resolved are defined. The way in which a person sees the issue, or issues, largely determines the decision that he will make.

The next step is referred to as decision making and testing. Each member of the group is asked to write out his decision on the incident and to give reasons backing up his judgment. The group is then broken into subgroups according to the decisions reached by the various members. Each subgroup elects a spokesman who, with the help of all group members, makes out the best possible case. Then each spokesman is given a few minutes to outline the group's position. Cross-examination and rebuttal by the spokesmen are allowed.

The material is evaluated in the fifth and final step. The basic issues underlying the incident are discussed to formulate general propositions that can be taken away from the meeting and applied in daily practice. This last is really going from the particular of the incident to the area of general management principles.

The Incident Process normally requires three people to set up and carry out the program. First there is the director, who is responsible for the whole series of meetings and for the over-all success of the program. He is frequently the personnel manager. Second, there is the team leader, who presents the particular case and is prepared to answer all questions. Finally, there is an observer-reporter, whose job it is to record the facts of the performance and to evaluate the group effort. As group members become more familiar with the Incident Process, they are able to formulate their own incidents and to conduct the meetings themselves. This is what has happened at Keyes. Dr. Paul Pigors, originator of the process, led the first two or three sessions for each group, and then different individuals from within the group were chosen to present incidents themselves.

Mounting pressure from supervisors and foremen spurred interest in this unusual training program. You may wonder what it hopes to accomplish. The plan was instituted by President Ralph Cutting, who explains: "The foreman and supervisor group in the mill need information on ways in which they can improve their performance. In addition we had a group of a dozen or so top executives who had completed American Management Assn. courses. Their specialized training could be further honed by such a program.

"In between these two groups was, of course, a much larger third group in the sales, manufacturing, engineering, and general management departments who could also profit."

President Cutting was aware that Dr. Pigors was the pioneer in this field, and was doing some work with individual companies. Once the need had been matched with the availability, Dr. Pigors was asked to come to Keyes and undertake the incident seminars for all groups.

Dr. Pigors emphasized that Keyes realized improved management skills and sharpened decision-making on the part of all participants result from the sessions. The group discussions should foster an open mind which does not jump to conclusions, but waits until all available facts can be marshalled. To accomplish this, the tool is the incident: incidents first from other companies, and then from within Keyes. These are incidents which show how management skills have been applied and misapplied.

"Actually, we learn much more from our failures than from our successes," explains a Keyes spokesman. The discussion of an incident involving a management failure, when properly handled, has a great deal more to offer than the discussion of a situation where no conflict arose.

Participation begins with foreman and includes all salaried personnel through the supervisor level in the mill up to President Cutting. A typical group includes, among others, a mill foreman, a lab chemist, the advertising manager, the assistant traffic manager, the head of the shipping department, the market research manager, the head of the plastics department, the IBM supervisor, two mill tour foremen, and an engineer.

In making up the groups the principle of cross-pollination was applied. By mixing backgrounds and areas of responsibility, there would be a mutual exchange of information and inspiration. There are approximately 75 people in the four groups taking part in the program, and all experience levels imaginable are represented.

One fictional incident concerned an executive who was seen on a date in a night club with a woman other than his wife and was questioned by a superior. The follow-

ing is the incident exactly as presented to the panel:

At 9:30 a.m. Monday morning, Mr. A., the asst. IBM supervisor, and Mr. B., the company comptroller, were in the midst of a private conversation. After exchanging a few pleasantries, the conversation went as follows:

Mr. B.: I accidentally saw you at the Paradise Club Saturday night.

Mr. A.: Oh? Sorry I didn't see you.

Mr. B.: I'm sure that wasn't your wife you were with.

Mr. A.: As a matter of fact it wasn't.

Mr. B.: You'll do well to stop that sort of thing at once. It can only be bad for you and for the company. . . .

Mr. A.: Why don't you mind your own business . . .

Mr. B.: I'm telling you this for your own good. You really should listen to me.

Mr. A.: I'll do as I please in my off hours.

Mr. B.: You're fired!

At this point, Mr. A. got up and left the office. Later, he went to the company treasurer and appealed for help.

The group assignment: Assume you are the company treasurer. What is your course of action?

Several factors were uncovered in the discussion that followed. These included the fact that the company had no policy on morals or manners; the man in question had a questionable reputation with other girls in the company although he was a family man; the company involved was the major manufacturing firm in a small town; the man involved admitted freely that he was dating several women but contended it was "none of the company's business."

The group eventually narrowed its choice of possible decisions down to three: The first upheld the decision to fire the man; the second reversed the decision and reinstated him; the third followed a middle road, reinstatement but demotion. Oddly enough, the group was divided almost equally into three groups, each equally vehement in its position.

When the meeting was finally thrown open to phase five, a lively debate ensued during which many of the "hidden facts" inherent in such a situation were brought to light, the question of whether an executive had the right to conduct himself in a questionable manner during off-hours was also bandied back and forth. Said Dr. Pigors: "I am delighted not only with the progress of this group but with the way its members seem to temper their views and gradually reach certain common attitudes about the situation."

Situations that lead to conflict within the discussion groups lead to conflict in everyday job situations. The groups have produced some instances of offensive behavior, intolerance, superiority, bad manners, and the like. If these can be ironed out through group dynamics, over a conference table, a great deal of future trouble can be avoided. It was very important to impress upon everyone before the sessions started that this was not an appraisal technique. The meetings were held so all could participate and benefit, but no one was being watched or judged on his performance at these group sessions.

Following the first session three of the groups were given a short questionnaire. These were filled out anonymously, and every effort was made to get a sincere expression of opinion. There were only three questions asked.

Ninety-six percent said that they had gotten some worthwhile benefits from the sessions. Eighty-eight percent requested that they be allowed to attend a new series of meetings. Only thirty-five percent had any comment to make regarding improvement of the sessions. When asked what benefit they derived, an overwhelming majority said the sessions had taught them to avoid making snap decisions and to get all the facts available before taking any action, regardless of outward appearances. This was the underlying principle on which all sessions were based.

Based on the responses to the questionnaires, management plans to schedule a new and continuing series of meetings starting in the spring, and to include the other plant if possible. Meetings will probably be held about once every six to eight weeks, and different members of the Keyes organization will be encouraged to write their own factual incidents and to present them before the groups.

It is obvious that no appraisal can be made at this time as to the effectiveness of the Incident Process training program. Only the future handling of problems will show if the program has actually helped the management skills of the participants.

But based on the reaction of the members and the enthusiasm with which they participated, the Keyes management is confident that the time and money spent on this rather unusual training program will return handsome dividends. ■

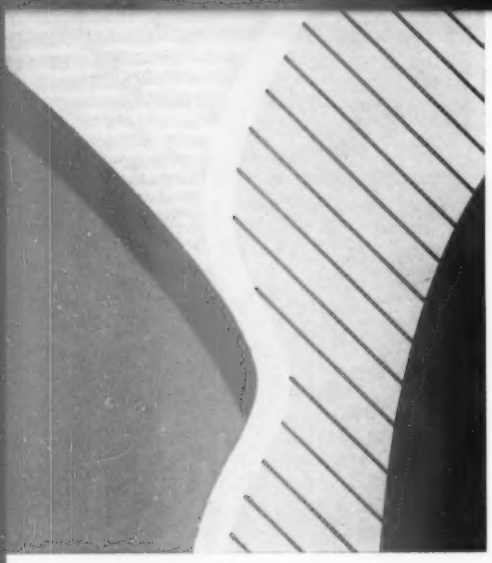
Why Incident Process was created

Where did the "Incident Process" come from? It was devised by Dr. Paul Pigors, a professor of industrial relations at Massachusetts Institute of Technology and noted expert in the field of labor relations. Dr. Pigors, aided by his wife, was looking for a new method for training supervisory people, from the foreman level all the way to top executives.

He and others believed that the "accepted case method," made famous at Harvard and used there in academic surroundings, was not satisfactory when taken outside the academic atmosphere. One major objection: The case method began with an established set of facts and questions already neatly arranged and settled.

Dr. Pigos argued for a new approach which would start with only a bare incident and make the trainees themselves dig out the facts, just as supervisors and administrators must do in working out everyday problems. "Make them get the facts," he said, "and ALL the facts. You just can't train men to do this by handing them this material on a silver platter. The secret to good management is to have all the facts available and the best way to train men to get these facts is just to make them dig it out. . . ."

Now used by many leading companies, the process can be used effectively as a "refresher course" too. Men are not only trained to deal with problems through this incisive method, but those in positions of responsibility can continue sharpening their supervisory wits by using its techniques to review their decisions, determine whether they have made the right decision.



TRAILING BLADE drawing courtesy Rice Barton Corp. and Oxford Paper Co.

By STANLEY M. JEPSEN
Staff Editor

Coating Today— Five Variations Are Studied at Meeting

KALAMAZOO, MICH.—Sparked by five probing discussions on coating, the Fifth Annual Pulp & Paper Conference was a big success. Held here at Western Michigan University on January 19, overflow attendance marked the full-day sessions which explored from the man-in-the-mill viewpoint trailing blade coaters, the Steineman pressure curtain coater and the Levelon coater.

The 26th Annual Papermakers' Get-Together was held in the evening at the Hotel Harris and was sponsored by the Kalamazoo Valley Section of TAPPI and Michigan division PIMA.

On-machine trailing blade coating was discussed by Richard C. Porter, paper machine supt., S. D. Warren Co., Cumberland Mills, Maine. This mill has two Beloit trailing blade stations, for coating two sides, on one of its paper machines. The blade coaters follow a pre-coater installation. At the end of the main dryer section for raw stock is a 4-roll calender stack to level the caliper of the sheet and to give a moderate degree of machine finish.

Directly following the calender is the pre-coater, S. D. Warren's own impregnating type with two main coating nip rolls. About 4 lbs. of coating are applied per side.

In the original installation a dryer bank of five 48-in. cans, three top and two bottom, followed the pre-coater. A Ross high velocity air cap was installed on the first top dryer and a dryer felt covered the other two top cans. The sheet run was directly from the pre-coater rolls to the top dryer with a hot air floater under the sheet to set up the coating enough to lay it on the first top dryer.

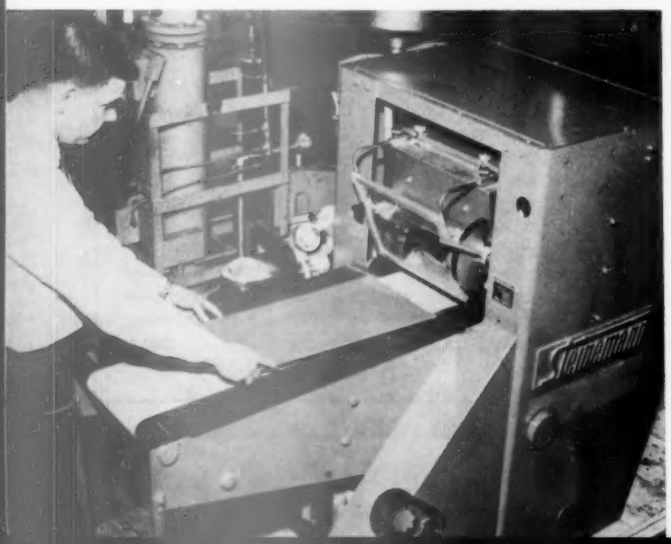
Sheet run from this dryer bank is to a pair of pull rolls, to establish a positive bite on the sheet, then under the floor and up to the first blade station which coats the top side. The run is then over one 5-ft. dryer with a high velocity air cap, two 4-ft. dryers and a second pair of pull rolls to again establish a positive nip.

The sheet then goes to the second blade coating station which coats the wire side. After coating, the sheet goes around a 5-ft. dryer with a high velocity air cap and three 4-ft. dryers to complete the drying. Again, the two top cans carry a dryer felt.

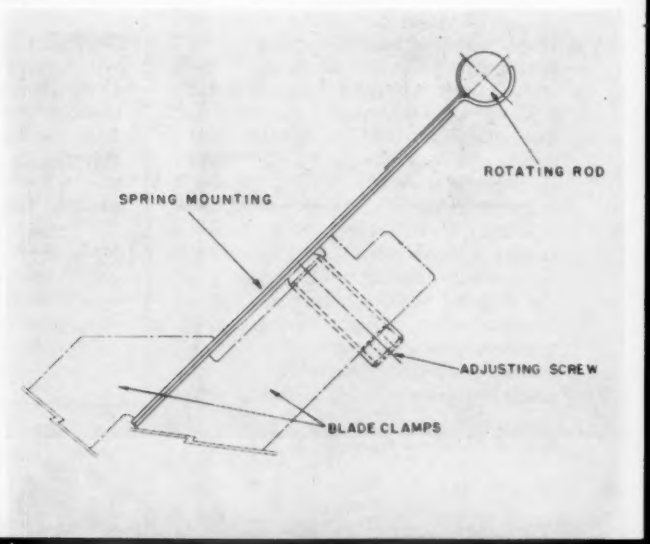
The two blade coaters are the puddle type, where the coating pond is held by the back of the doctor blade; the blade retaining the coating in the pond, or puddle. Coating weights from 3 to 8 lbs./side are applied at each blade coater, depending upon grade. Finished sheet weights vary from 50 to 80 lb. are run at speeds from 450 to 800 fpm.

Quality was as expected, cited Mr. Porter, in discussing some of S. D. Warren's experiences with the

PRESSURE CURTAIN COATER is used by Packaging Corp. of America to coat solid fiber beer case blanks.



CHAMPION'S CHAMPFLEX COATER is improvement upon Champion rod coater, is used in several board mills.



on-machine double coating installation. Overall machine efficiency has not suffered as much as was expected, he said, compared to impregnating type coaters previously used.

As machine speeds increased, there was insufficient drying capacity in the first after-dryer section following the impregnating coater. Another high velocity air cap was added on the second bottom dryer, but using both air caps at maximum drying rate gave trouble with low grade cockle in the sheet. The impregnating coater struck moisture into the raw stock and it was evident that this type of high velocity dryer was leaving shrinkage stresses in the sheet.

The final remedy was to remove both air caps and add two 4-ft. cylinder dryers to this section, making a total of seven. A bottom dryer felt was also added on two dryers and the top felt was lengthened to cover three dryers. This made it possible to do away with the first pull nip.

"As everyone who has operated either an on- or off-machine coater knows, the sheet runs and sheet threading arrangements are quite critical," said Mr. Porter. "Generally, it is easier to handle a wet or semi-dried sheet without wrinkling than a dry sheet as required for a blade coater. Of course, as speeds go up and weights come down, this becomes even more critical," he said.

It was also necessary to use expander rolls and special paper rolls in leading the sheet onto the coater backing rolls, and again on the sheet after coating to lay it smoothly on the first dryer.

The Beloit coaters have a secondary or "scraper" doctor which has been helpful in on-machine operations. This enables the operators to dump the puddle after closing the secondary doctor. The coaters may then be washed up and blade changes made on the fly with a minimum of time loss.

End dams are worst problem in puddle type coaters, says Mr. Porter. Various designs have been tried but none really solves this problem, he states. Changes in blade pressure change the flexing of the blade and leaks at the end dams result. He concluded, "We have been successful in blade coating with all common pigments, provided we keep our solids and viscosities within reasonable limits."

High speed off-machine blade coating has been very successful at Blandin Paper Co., Grand Rapids, Minn. Blandin uses Rice Barton trailing blade coaters to produce letterpress and rotogravure papers. Reporting on their operations were C. A. Blaine, coating supt., and H. Mertz, coating research staff.

Blandin installed its first trailing blade coater in 1954 to coat both sides of a 30 lb. base sheet with a 6 lb. starch-clay coating per side at maximum speeds of 1600 fpm. A second coater was installed in 1959 which has many new features, including speeds up to 3,000 fpm and high velocity Gardner air dryers.

Blandin believes that at present, off-machine coating with the trailing blade coater is best. Here's why: (1) equipment is so arranged that each operation produces a smooth flow of paper with a minimum of handling and equipment. (2) With off-machine coating, it is possible to rewind and trim base roll from the paper machine and present a mechanically sound sheet to the coater. All machine breaks are spliced, hole removed and edges trimmed smooth and rolls wound at uniform tension.

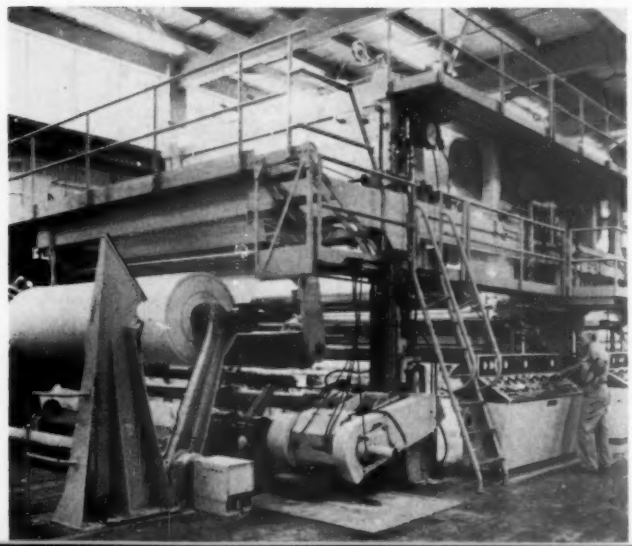
(3) High coating speeds are possible because of the design of the flying splicer, electric drives, tension controls and reel, which allow all operation to take place at full coating speed. (4) It is also possible to absorb necessary downtime for the coater without affecting efficiency of the paper machine.

Champion's Champflex "blade" coater was described by Charles G. Whelpton, asst. mgr., European & Licensing div., Champion Paper & Fibre Co. Designed to produce acceptable quality with simple, inexpensive and stable equipment, the Champflex coater applies coating to the web by a dip roll. This roll normally turns in the opposite direction to web travel and applies an excess of coating to the web. As the fluid portion of the coating layer next to the web is absorbed by the paper, a semi-solid filter cake is formed. The coated web then passes over a doctor blade that removes surplus coating, leaving a semi-solid filter cake on the paper surface.

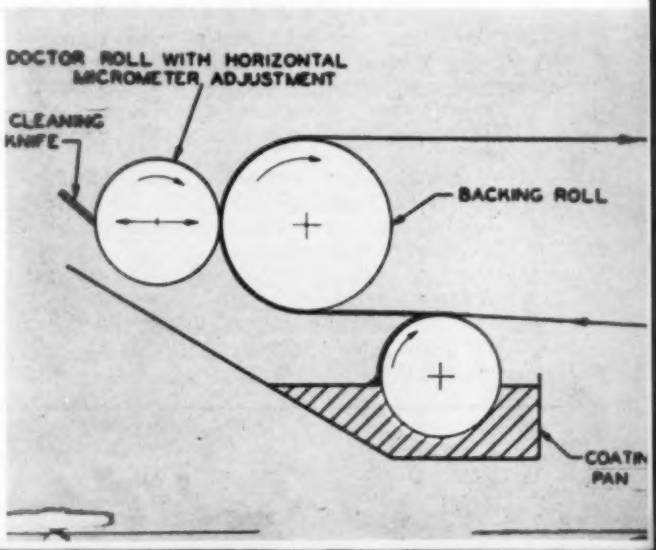
Key to the success of the Champflex coater, says Mr. Whelpton, is a small diameter rotating doctor bar. The rod is chromeplated for long wear. Blade body is a spring-steel strip about 3½ in. wide by 0.025 in. thick. Two thin strips are welded along one edge to hold the rotating bar. Diameters of rods now used in present installations are ¼ and ⅜ in. Larger rods apply heavier coat weights, but the small rolls produce a smoothing application. Blade life ranges from 350 to 700 hours; depending primarily upon speed. Blade life of 1,400 hours is not unusual. The limit is imposed by the paper machine rather than the coater, says Mr. Whelpton.

Complicated and expensive coating preparation and handling operations have not been essential to the Champ-

BLANDIN'S OFF-MACHINE trailing blade coater is a Rice Barton coater and is designed for 3,000 fpm coating.



LEVELON COATER IS DESIGNED for high solids coating. Unit is made by Waldron-Hartig Laboratories.



COATING PANEL: C. G. Whelpton, Champion Paper; C. A. Blaine, Blandin Paper; Richard C. Porter, S. D. Warren; Moderator Dr. Robert A. Diehm (standing); WMU professor of paper technology; Daniel E. Bergsma, Packaging Corp.; Karl Halladin, MacSimBar Paper Products.

flex coater operation. Nature of the coater permits a wide variety of coatings to be used. Bone dry solids can range from less than 30% to more than 60%, though the usual amount is about 45 to 55%. Viscosities as low as 50 and as high as 11,000 centipoises have given satisfactory results, says Mr. Whelpton.

High speed on-machine coating with the Levelon coater, is now on operation at Waldorf Paper Products Co., St. Paul, Minn. This is said to be the only full-scale unit in operation and is on a 130-in. Fourdrinier. The Levelon coater is designed to meter and smooth high solids, high viscosity aqueous pigmented coatings on paper and paperboard at high speeds over a wide coating weight range. In laboratory trials, it has operated at 2,000 fpm. Speed of the on-machine operation, which has been on an intermittent basis for the past year, is limited by drying capacity. Applications have ranged, said Karl Halladin, general supt., MacSimBar Paper Products Co., Otsego, Mich., who described the process, from 1 to 15 lb./1,000 sq. ft. of coating, using 45 to 65% solids, and viscosities from 3,000 to 20,000 cps.

The Levelon coater applies coating to the sheet by a color roll traveling in the same direction as the web. An excess of coating is applied, depending on the viscosity of the coating and speed of the color roll. The sheet with this excess coating travels through the nip, consisting of an inside backing roll and the outside Levelon roll. A stop between these rolls is varied depending upon the caliper of board being coated.

Nip of these rolls is air-loaded to apply up to 50 lb. pressure pli. Coating is metered and smoothed passing through this pressure-loaded nip. Excess is removed by the Levelon roll, which in turn is cleaned by an oscillating doctor blade. Doctored coating is strained and recirculated for re-application to the web.

The rubber covered backing roll is not driven and is a neoprene rubber roll with a P&J plastometer between 130 and 160. The Levelon roll is chilled iron ground to a high finish. This roll is driven by a 25 hp variable speed motor in the reverse direction to web travel. It is generally varied from half of web speed to full web speed. Color roll speed varies from one-eighth to one-half web speed.

One-minute blade change is a feature of the Levelon coater. The doctor of the Levelon roll is a spring steel blade in a Lodding doctor holder. Angle of the doctor blade is important and must be oscillated continually. A doctor blade lasts 6 to 8 hours.

Streak-proofness is a significant feature. There is no place for dried particles of coating or fibers from the board to lodge. The flushing action of the Levelon roll carries any particles or lumps away from the nip and coating on the Levelon roll is doctored clean.

Mr. Halladin said, "We have been extremely pleased with the quality surface produced by this coater. We believe we have developed a coated surface on a bleached board equal to or superior to any printing surface on the market."

The pressure curtain coater was described by D. E. Bergsma, senior research chemist, Packaging Corp. of America. Originally designed in Switzerland to coat furniture, its use has spread to paper. (See PULP & PAPER, July, 1959, "Up, Up goes Coating.)

The Steineman pressure curtain coater can coat cabinets, plywood, fiberboard and paper. It can use natural or synthetic lacquers and many other coatings.

The coating curtain is formed by an orifice between two precision-ground knives that resemble planer knives. One is stationary and the other movable. The coater is housed in a rigid steel framework that supports the coating head, the circulating or pumping system and the conveying system.

As finish material is pumped into the airtight head, a cushion of trapped air is formed at the top. Coating material is forced out through the lower orifice as a thin sheet of film of uniform and controlled thickness extending over the width of the coater and perpendicular to the travel of the object to be coated. An endless belt conveys material through the curtain.

Surface tension is important and so is viscosity. These directly affect curtain formation and coating suitability for a curtain coater operation. The machine can operate best in a range of 75 to 250 cps viscosity. If surface tension is too high or too low, the curtain may not operate.

A unique feature is the absence of any contact between coater and stock to be coated. The applied coating is similar to air knife coating in that the coating tends to be of even thickness and uniformity throughout. ■

A Sampling of Questions Answered by Panelists

SRO conditions prevailed in the afternoon session at Western Michigan U's paper industry laboratories when coating speakers returned to reply to questions left unanswered in their morning discussions.

Q. Is the Steinemann coater being used for coating continuous web?
A. (Bergsma) There is no reason why it could not—but did not know of any now.
Q. What is highest viscosity of color coating that can be used on Champflex?
A. (Whelpton) 11,000 cps.
Q. Could Champflex coater be used just ahead or behind a calender?
A. Yes, if drying is provided.
Q. What kind of drying is used behind a Steinemann?
A. Almost any system can be used. Depends on material, speed, etc.
Q. Can coater blades be reground to prolong life?
A. Experience has not been too good. Average life reported is 16 hrs. Have had reports as high as three days.

ENGINEER AND DRAFTSMAN discuss changes, then details are sketched directly on drawing, an example of . . .

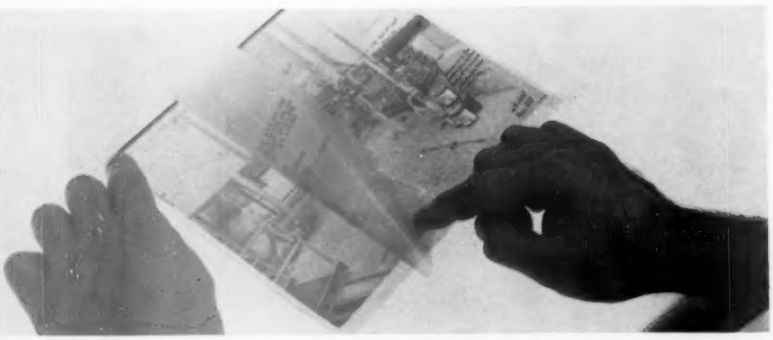
Buckeye's Visual-Planning: ENGINEERING and MAINTENANCE By Photo-Drawing

Working directly on photographs, Buckeye uses simple, direct, time-saving method to plan additions, expansion, maintenance

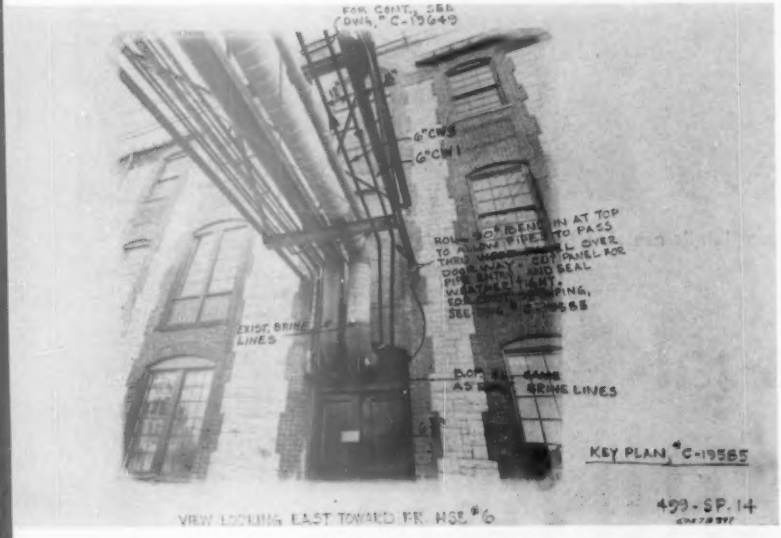
Foley, Fla.

Buckeye Cellulose Corp. has adapted photo-drawing to a most practical use—as a base for planning and blueprinting additions or changes to existing facilities.

Photo-drawing technique is best where something fairly simple is to be added to a relatively complex existing situation. It is particularly good where engineering information concerning existing equipment, piping, electrical wiring, etc., is incomplete or incorrect. Pictures here take the place of lengthy field measurements and either new drawings or corrections to those in stock. Actually, properly taken photos are better than drawings as a tool for the designer to determine the easiest, best and least expensive way to do the job.



DISCARDED CONCEPT of designing is shown above. Vellum sheet was placed over the photograph and changes were sketched on it. Inaccuracies can occur easily.



FINAL CONCEPT PERMITS DRAWING on photos. Here a chilled water distribution line is sketched on photo. Tight clearances must still be measured.

NECESSARY EQUIPMENT includes darkroom, enlarger, vacuum frame, contact half-tone screen and stainless steel processing trays large enough to handle the largest standard drawing form. 35 mm camera is ample.

Having determined the best approach for the project, whether it be an addition or a maintenance job, it is frequently unnecessary, says Buckeye, to make any field measurements because these can be made by construction forces. Specific, pertinent measurements can be taken if needed.

Care and experience are needed when taking the original pictures to be certain that the proper location and perspective are obtained. This done, it is relatively simple to sketch changes and additions right on the picture to show pipes, equipment which must be moved, new items to be placed in the area. A screen positive on polyester sheet film then becomes reproducible on Diazo prints and the draftsman or designer can make changes and corrections directly on these prints in either pencil or pen.

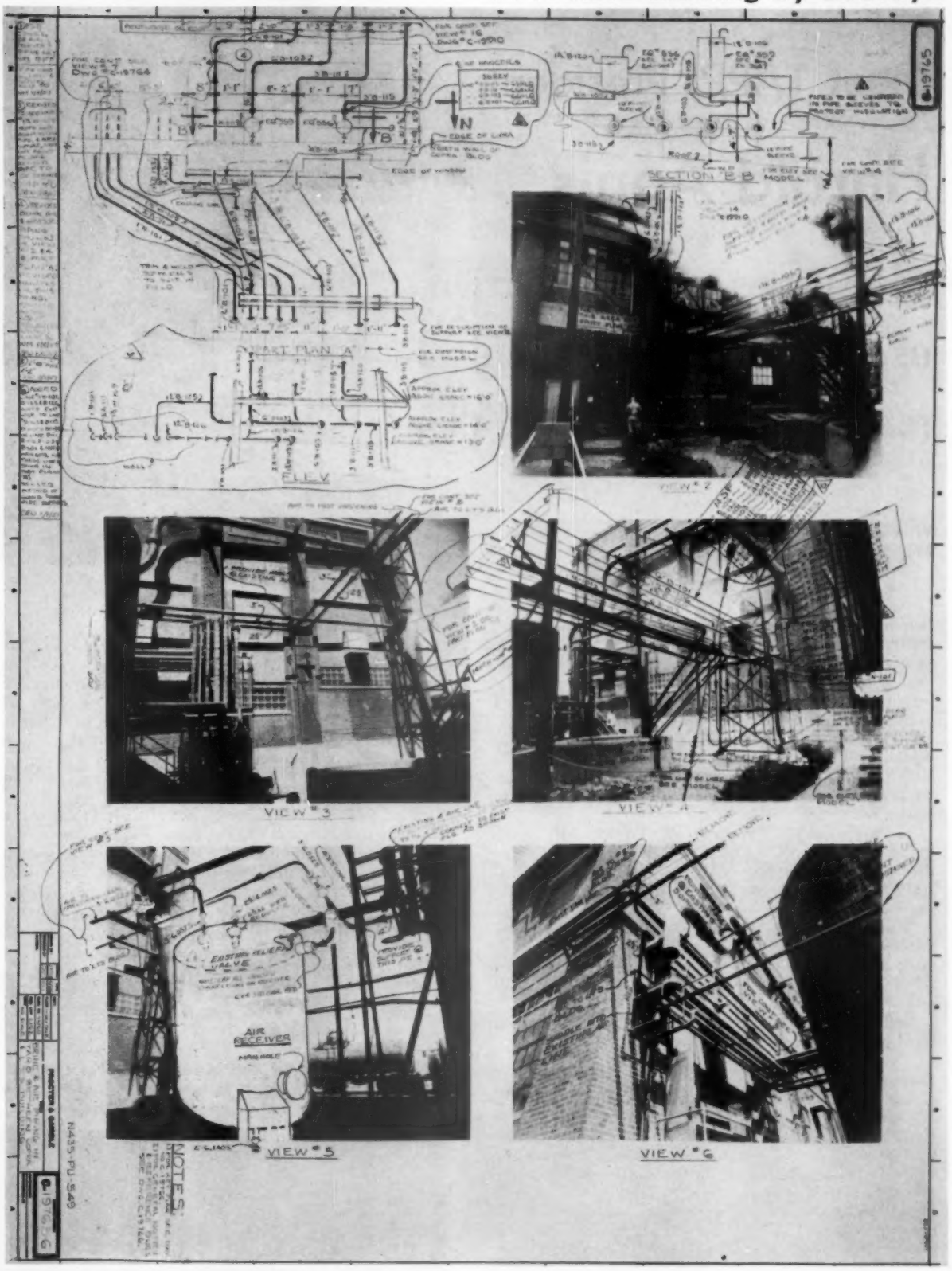
Used in expansion at Foley of both the causticizing area and the chlorine dioxide generation plants, the system saved time and enabled engineering and construction forces to make relatively minor changes and additions. The method has also been used for such applications as extending a water treatment system, adding power feeders through fairly congested areas, adding piping and wiring in tight areas.

A note of caution, says Buckeye: Care must be taken to be certain the changes are not simply sketched in without knowing for sure whether they will fit in close quarters. Here a detailed sketch may be needed to confirm clearances.

Cost of system is relative because of the high initial cost of installing a darkroom. However, once this investment has been made, cost of this type of projection is much lower than usual methods. Buckeye estimates 20 to 60% more man-hours are necessary to do the drawings by conventional methods than by the use of the photo-drawing technique.

Furthermore, based on a comparison of conventional drawings and photo-drawings, Buckeye has assigned an average hourly drawing cost. A 9x12 drawing is estimated at 55 cents for material and one hour man-labor. A 12x18 cost 85 cents, takes 1.4 hours. An 18x24 costs $1.70, takes 1.8 hours; a 24x36 costs $3.40, takes two hours and a 30x42 costs $4.50 for materials, takes a total time of 2½ hours.

It has also been noted that initial cost of setting up darkroom facilities could feasibly be lower than the $3,000 Buckeye earmarked for its darkroom. Good 35 mm cameras are available for a reasonable amount. ■



REPRODUCTION OF LARGER DRAWING shows how continuity and understanding of entire plans can be obtained by sketching all facets of project on one 30x42 in. sheet. Here brine and air piping are fully-designed into photographic blueprint. These can then be reproduced and copies supplied to everyone involved.

PROFILE:

Meet TAPPI President

Harold Annis

who urges more effective use of industry's technical manpower, research dollar

Written and photographed by Staff Editors Maurice Castagne and W. F. Diehl Jr.

"I'm a bug on effective use of technical manpower. It really drives me crazy. This problem involves people and their relationships with each other. And communications too. All kinds of communications. Within the industry . . . within companies . . . within associations . . ."

Harold Annis of Oxford Paper Co. was talking. He lit a cigaret, toyed absently with his Zippo lighter, leaned back behind his broad desk. Intermittently he stared out of his 20th floor office window at the skyline, as though expecting answers to some of our questions to be spelled out for him in neon.

As newly-elected president of TAPPI, Mr. Annis' thoughts might well indicate at least part of the course the association will take under his leadership this year. TAPPI scheduled meetings on this very subject for this year's Paper Week.

"I think this might be one of our big targets next year, this technical manpower thing," he went on. "Look, we make mill visits, see practical answers to some of the headaches we have at home. But do we do anything about it? Too often the answer is no!

"Improved communications combined with action should be of primary concern this coming year."

There are other indications
of the type of leadership TAPPI can expect from this 22-year Oxford Paper veteran. Jaunty, quick, incisive, Harold Annis began his paper career in technical services for The Mead Corp., after graduating from Miami University at Oxford, Ohio, and the Institute of Paper Chemistry. From there he moved to Allied Paper Products as technical director, then on to Oxford in the same position. His rise up the Oxford ladder has been impressive. From technical director to manager of sales service, then to manager of product development and on to asst. v.p. in charge of manufacturing. Two years ago he was made vice president in charge of research and development, the position he now holds.

Because he is a research man
it would be natural to expect Harold Annis to take a special interest in R&D while guiding TAPPI in its next year.

"We can't go overboard on anything in particular," he said. "Perhaps research and development problems will receive more attention than they have in the past. But the job of the president of TAPPI is a broad one. It would be wrong to concentrate on one's first love.

"Actually what I was talking about before, the manpower problem, all ties in to research in a way. By that I mean seeing that the things we learn from each other through research and development are directed toward application and earnings. We set up continuing research reports in broad fields. Can we expedite them? A company is set up to make a dollar. How fast can we turn information into black figures on the ledger. I don't think we're moving fast enough in that direction."

What is the biggest problem
confronting the industry this year? Merchandising and distribution, says Mr. Annis.

ON COATING: "Wet end operations are of prime importance. If you're going to high speed coating operations, get your wet end house in order before you start."

WITH OXFORD PRESIDENT William Chisholm, Mr. Annis studies mock-up of North Star coater, his pet project. Said Mr. Chisholm: "Oxford considers it a compliment to have one of its men as TAPPI president. And it should broaden Harold's scope."

IN SHIRT SLEEVE SESSION with colleagues John Vogel, center, manager of marketing research, and N. P. Jensen, manager of sales service, Harold Annis discusses new Oxford coated sheet.

"A lot of people think we're in a vulnerable position right now. After all, we were the fastest growth industry in the world for the past 10 years. We are constantly being shot at by industries we replaced . . . glass, metals, that sort of thing. Some of that growth will be fair game for competitors. Very likely we're in trouble in that respect.

"But we're not standing still. Look at J. P. Stevens, and Kimberly-Clark in the exotic paper field. And Scott in new product development. Mead, too. There is plenty of activity in the new product field. Perhaps we should be moving faster, though, or in greater numbers."

Segment-wise things look good
particularly in the newsprint and printing paper fields, he believes. And there is a wide area for research here.

"The basic weight problem is going to force new developments. Publishers are in a squeeze with higher postal rates. That means lighter printing papers and at the same time, increasing demands as far as coating goes. The interest in coated newsprint is high too. You don't see it here in New York as much as other places for some reason. Dallas, Atlanta, Chicago, are all using color in newspaper advertising. It's growing big and will get bigger.

One big fact remains
and that is that we are in a belt-tightening period right now, Mr. Annis continued. One thing the industry must do, he said, is re-examine research programming.

"You don't fire research men in these tight times, you look for a more effective way to spend the research dollar. Get more for your money, instead of reducing expenditures. You develop new ways to get rid of excess capacity . . . sell your product in other words. All the signs in this direction are healthy. If we get through this first six months okay, I agree with the financial observers, we may be able to let that belt out a notch or two by late 1961."

Pressing his lower lip against his teeth with the back of his thumb, a common habit when he is deep thought, Harold Annis pondered words to sum up his thoughts.

"Let's just say," he concluded, "that we are in a period of rapid technological changes. I like it. It's good. And it's going to continue, to increase, not slow down." ■

ON RESEARCH: "We're in an era of new product development. The research man will play an even more important role in this battle than ever before."

ON RECREATION: "A man in today's high pressure business must learn to relax. I just happen to enjoy the vicarious pleasure of watching sports cars race."

Have a corrugated container problem? There is a good chance your question is asked—and ANSWERED—below in this exclusive Canadian report on . . .

How Symposium Tackled

MONTREAL—For the first time in its history, the CPPA's Corrugating Containers Committee this year opened its annual meeting to questions from the floor. The response was impressive.

Though no formal minutes were taken or will be printed, the following is a transcript of the problems posed by those who attended and the answers offered by the experts. The "panel": H. R. McGee of Bathurst Power & Paper, chairman, assisted by Don Black, Gair Continental Co.; T. E. Monaghan, Sherbrooke Paper Products; H. A. Buckley, Standard Paper Box and Henry Ostrowski of Hinde & Dauch.

On Adhesive and Adhesive Bonds

Q. How can weatherproof adhesive be tested before being used at the corrugator?

A. Paint the adhesive on the liners, stick and dry on the hot plate. Submerge sample into water at 120°F and if there is no breakdown in 3-5 mins., the adhesive should be O.K.

Q. How can weatherproof adhesive bond be made more reliable, particularly at the single face?

A. Do not be too skimpy on the amount of adhesive. Use 3-7 lbs. (average 4.5 lbs.) of solids per M. sq. ft. of combined board. Fluting roll temperatures should also be reduced to increase adhesive penetration and fibre pull.

On Corrugating Operations

Q. How may warp, twist, round sheets and high-lows be reduced or eliminated at the combiner?

A. Location of the machine near doors and windows may cause warp. Speed, degree of wrap and the amount of heat on the hot plates and a difference in the moisture on the liner affect warp. High-lows on the corrugator can be due to the condition of the corrugating rolls, faulty condition of the fingers, setting of the corrugating rolls. High-lows can be reduced by running at a minimum even tension and using medium with a minimum flute caliper difference.

Q. How effective is water spraying on corrugator in warp control?

A. Very little effect and the maximum amount of moisture that can be put into one liner might be up to ½%.

Q. What difficulties have been encountered on running roll stock that has been stored outside?

A. Storing outside for any length of time causes waste depending on degree of sizing and hardness of rolls. The rolls may be subjected to wet wicking action caused by snow ruin and ice with more waste on bilge storing than on end storing. These edges when dry cause cracks. The West Coast and Maritimes do not store outside due to the wetness of their climates. Capping rolls stored on ends reduces waste from .25 to 1%. Polyethylene covers on both ends reduces the waste to almost zero. Cold rolls from outside storage should be brought indoors 24 hrs. prior to running since cold rolls generally slow down the corrugator and require more preheat.

Q. What shrinkage has been encountered in the cross-machine direction on the corrugator?

A. Up to 1⅛ inches on a 70 in. width roll with less shrinkage on the lighter weights.

Q. What is the advisability of having vertical and horizontal adjustments available at the corrugator roll stands to minimize the loose edge condition in roll stock?

A. A device to cock a roll on the corrugator is desirable and Langston are now making a spring roll with vertical and horizontal adjustments.

Q. How is it possible to obtain really accurate sheet counts of good stock off the corrugator to avoid costly overruns and under-runs?

A. By using a printing counter ($150.00) on the corrugator cut off. This is a fairly accurate device.

On Printer-Slotter Operations

Q. In letterpress printing of corrugated boxes, what is the minimum printing deflection that can be used to eliminate offset (excluding use of offset spray) in relation to the following considerations: Ink Coverage, number of colors printed, flute, height of pile of printed boxes, type of ink, box size, aging time of board between corrugator and printer slotter.

A. Moisture set ink will not offset as much as gloss inks. A flute impression should be 12-15 pts.—B flute 5-6 pts. Aging the board 16-24 hrs. prior to the printer slotter stiffens up the corrugating medium on which more faithful reproductions can be printed. Height of the pile and area of the board affect offset.

Q. What methods are available to prevent offset?

A. Offset sprays have to be used. The intermittent type is more satisfactory than the continuous vibrator shaker type. The continuous offset produces a 'sandpaper' effect and lowers the rub test. A specially designed score to prevent nesting was raised as a possibility to prevent offset.

Q. How is offsetting on overall printing overcome?

A. The printed boxes should be stored separately on the edges.

Q. Is it possible to pre-fold the tab of a box at the printer-slotters?

32 Corrugating Queries

A. Yes. Both Bathurst and H&D Etobicoke do this.

Q. Is there a really satisfactory counter for the printer-slotters that will count sheets, not machine revolutions?

A. Bathurst have 4 sheet counters—2 heavy-duty and 2 photo electric—which give an accurate sheet count more than 90% of the time.

On Scoring, Slotting and Slitting

Q. Is there a method to eliminate unclean slots at the printer-slotter?

A. Whether a slot will cut clearly depends partially on the kind and degree of refining of the pulp. Bathurst have tried out a lot of contours with the saw tooth and think that a serrated blade might work. To improve slotting, the scoring should come first to crush the flutes and slot after.

Q. What is the most effective score contour for the vertical scores on the printer-slotter, particularly for 125 lb. test shock?

A. Bathurst use a V flat score for "A" flute. A male-rounded 5/32 in. score is used by Sherbrooke on "B" flute. Etobicoke have used a 70 durometer V to flat rubber on 42 lb. liners and B flute.

Q. What methods have been found successful to eliminate cracking on the score lines?

A. A 3 pt. score can be used and do the fabrication at a high humidity level.

On Die Cutting Operations

Q. Has anyone used a welding machine to manufacture steel rule dies?

A. No one has tried this.

Q. What type of steel cutting rule is being used in corrugated industry?

A. 0.937–1.0 and 1¼ in. in height which vary 2 to 4 pts. in thickness and of varying hardness depending on the number of curves.

Q. How is the splitting of the inside liner (especially 26#) in the direction of the corrugations overcome?

A. Sheets should not be too dry and light pressure used.

Q. Is there a material available as good as Resorcinol, but more economical?

A. ⅛ strength Resorcinol gives a good fibre pull and can be used.

Q. Is there an economical cold set adhesive available?

A. Two large suppliers making cold set on a large scale and since the costs of the ingredients are high, there is no anticipated drop in the price.

Q. Has anyone had experience with a resin adhesive at the middle glue line on double wall board?

A. H & D Etobicoke have tried this without too much success. The additional cost of cold set makes this uneconomical. The best adhesive is probably a thin glue line of silicate. Sherbrooke Containers use resin on one item.

On Finishing Operations

Q. What variations are obtained in tape length on semi-automatic and automatic tapers?

A. This depends on the condition of the machine. A new machine can hold this to 1/16 ins. while an older one can hold this to ⅛ ins.

Q. How can splitting on the outside liner of a 500 lb. test double wall container be overcome when stitching?

A. Press the board well before stitching.

Q. What is the best method of minimizing the dimensional instability of a corrugated box?

A. Keep the moisture and humidity conditions uniform.

Q. What effect has temperature and humidity on taping and gluing?

A. Under cold and humid conditions, the tape does not stick too well and the machine has to be slowed down.

Q. Has anyone experimented with an automatic twine bundling machine and if so, what has been his experience?

A. One was tried out for 3-4 weeks and ran well. However, there was a problem of getting the bundles to the machine.

Q. Has anyone had experience using a Mobane Kit on a 485 stitcher?

A. H&D Etobicoke has had reasonable success with the kit running 475 stitches per minute.

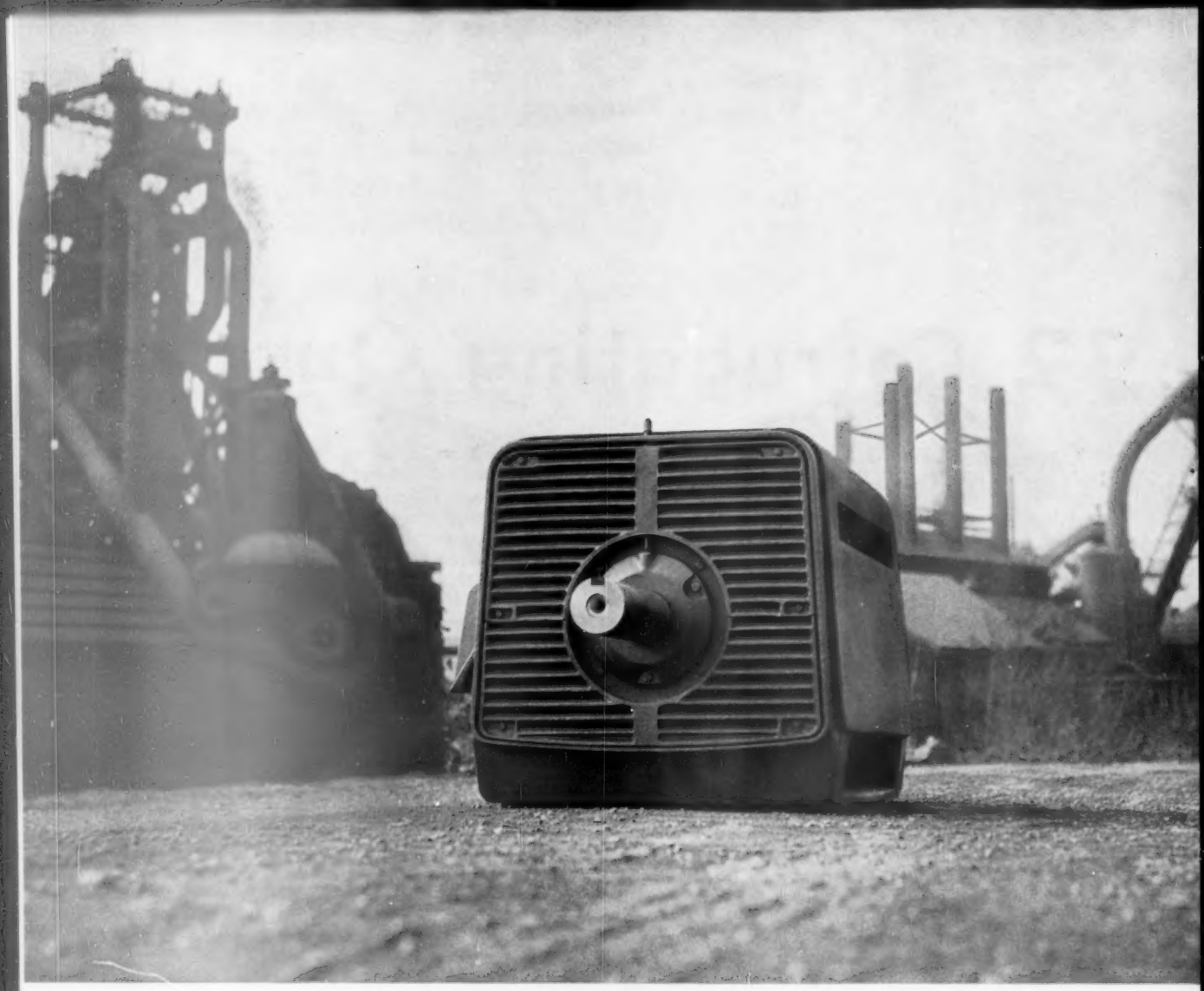
On Miscellaneous Questions

Q. When should a kraft medium be used and when should a semi-chemical be used? How do their strength properties influence such a decision?

A. Because of its higher mullen, tear and sizing, a kraft medium should be used to improve puncture, resistance to falls in the drum test, scoreline tearing such as might occur on canned items, and in certain weather-resistant boxes. Because of its higher Concora and stiffness properties, semichemical medium is used where improved box rigidity and box compression are desired, along with good flat crush and cushioning.

Q. What is the runability nature of the two mediums?

A. Generally, more presteaming is required on the kraft medium and the board is softer. ■



America's Newest Compact

Here is how the Reliance D-5000 design shrinks, cools and quiets 125-2000 hp. motors.

This new, great cubic design gives you more horsepower in less space . . . actually the frame dimensions that held 150 hp. now contain 300 hp. There is better heat dissipation from the frame itself. Air flows easily through the entire grilled end areas . . . exhausting through long, protected slots at the sides and bottom. New fingerless ducted rotor design also means considerably better cooling than any other previous motor. Noise level is held to a minimum.

Reliance has incorporated all other Duty Master plus features into this motor . . . ball or sleeve bearings, special lubrication design, drip or splash-proof and complete open motor protection in its insulation characteristics. The Reliance Duty Master is built up to 2,000 horsepower; the D-5000, available now, runs from 125 to 300 hp.

The Reliance Sales Engineer that serves you is anxious to tell you the full story of this new Duty Master. Call him. He's in the Yellow Pages.

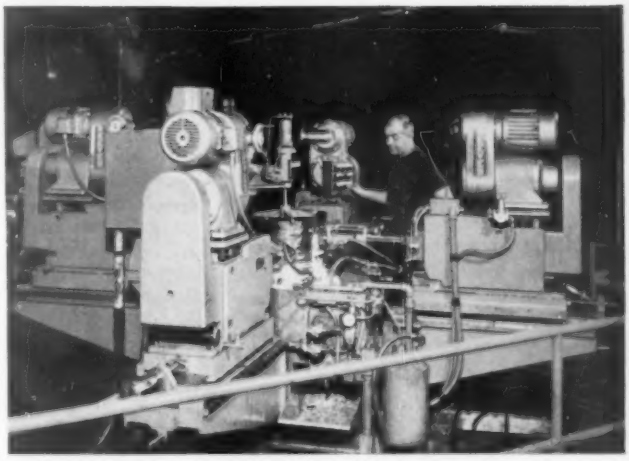
BUILDERS OF THE TOOLS OF AUTOMATION

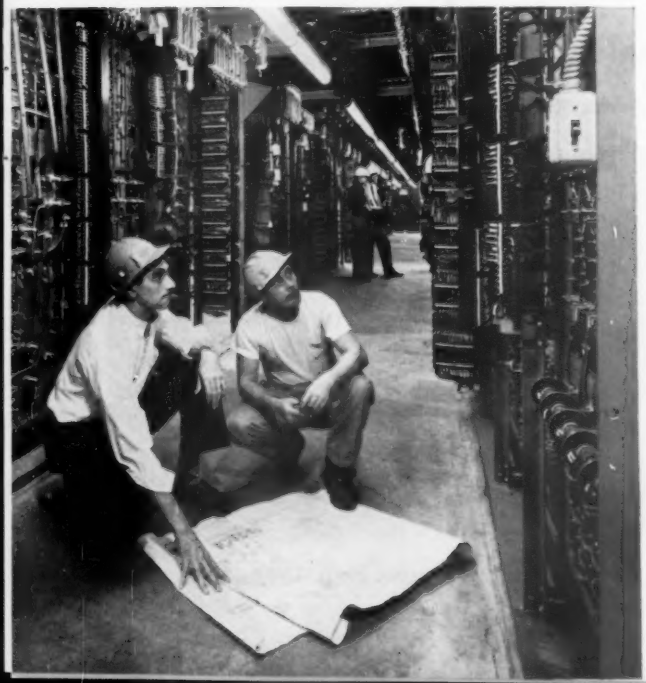
A-1684

ONE SELF-CONTAINED, COMPACT POWER PACKAGE. This MASTER GEARMOTOR has been operating outdoors for 5 years regardless of weather. It has no exposed high speed couplings, no V-belts, chains or sprockets. Engineering and assembly costs are reduced. You can simplify installations and save space with vertical, horizontal and flange mountings; output shaft over, under, left or right. Ratings 1/8 to 125 hp. in right angle, parallel or in combination. Right angle ratios are available up to 96:1; parallel 120:1. Bulletin E-2409.

CONTOUR EPOXY-COATED TO ELIMINATE ENCAPSULATION CRACKING. New RELIANCE ENCAPSULATED MOTOR . . . gives you positive protection from dust, dirt, acid and water. Unlike other heavy molded coatings, stator windings are vacuum-impregnated with epoxy resin at a uniform thickness, follow the contour of the windings. You get maximum flexibility, tensile and bond strength, plus quicker cooling . . . all vital to superior motor performance. Bulletin B-2108.

INFINITELY VARIABLE OUTPUT SPEEDS AT LOW COST. REEVES MOTODRIVES, shown here powering this 4-position drilling and boring machine, are used extensively for hundreds of production needs. Horsepower ratings from ¼ to 40, speeds from 1.71 to 4660 rpm. Speed variation ranges from 2:1 to 10:1. Available in hundreds of space-saving assemblies . . . with manual, remote or automatic process control (Airtrol). Bulletin M 592.





TOTAL SERVICE is an integral part of every Reliance product, from engineering and start-up assistance to maintenance and renewal parts. The photo shown here is typical of a Reliance Service Engineer's on-the-job availability—for maintenance and consultation on knotty problems. Every Reliance Sales Engineering Office and Distribution Center—nationwide—gives you the attention and experience necessary to assure the top performance you expect from the Reliance equipment you buy.

RELIANCE ELECTRIC AND ENGINEERING CO.

DEPT. 182A, CLEVELAND 17, OHIO • Canadian Division: Toronto, Ont.

Problem: Clearing pulp storage tank during shutdown

Problem: Considerable stock loss and tank cleaning expense during periodic summer shutdown because transfer pump did not completely clear pulp stock storage tank.

Place: Chesapeake Corp., West Point, Va.

Solution: Chesapeake installed a Thor No. 275 sludge pump which, by pumping material a distance of 55 ft. and up a 35 ft. incline, completely cleared the pulp stock from the tank. It makes positive use of all pulp material and saves previous man-hours for cleaning. The pump is air-powered and has no motor. Its few working parts are stainless steel and automatically lubricated. The pump is designed for two-stage breathing cycle, drawing in the pulp stock by air suction until its tank capacity is reached, then automatically changing cycle to close the inlet valve, open the outlet valve and expel the pulp stock under pressure. Pump operator Bill Strudder is shown holding a sample of brown stock which has just been pumped from the pulp stock storage tank.

Problem: Cutting up large paper rolls for repulping

Problem: Stripping large rolls for reprocessing in beater or pulper.

Place: Crown Zellerbach's West Linn, Ore. mill.

Solution: A roll-slabber saw has been developed here by Fred Maffei, beater dept. supt., and Merrill Cashman, safety supervisor. It performs in seconds a job which formerly took 15 minutes using a knife. It also reduces the number of injuries connected with the operation.

A 12 in. dia. saw preset for successive 2 in. cuts is mounted in a portable steel frame mounting. The cutting component is a heavy duty 5 hp P9016 Delta saw mounted on a hydraulic lift. Sawdust is collected in a dust bag behind the operator. A fork lift deposits each roll on a pallet board at the saw and after it is slabbed picks up the entire load and dumps it into either beater or pulper. The unit was developed over a period of four years and has received widespread attention on the West Coast. Mill manager calls it "invaluable safety factor."

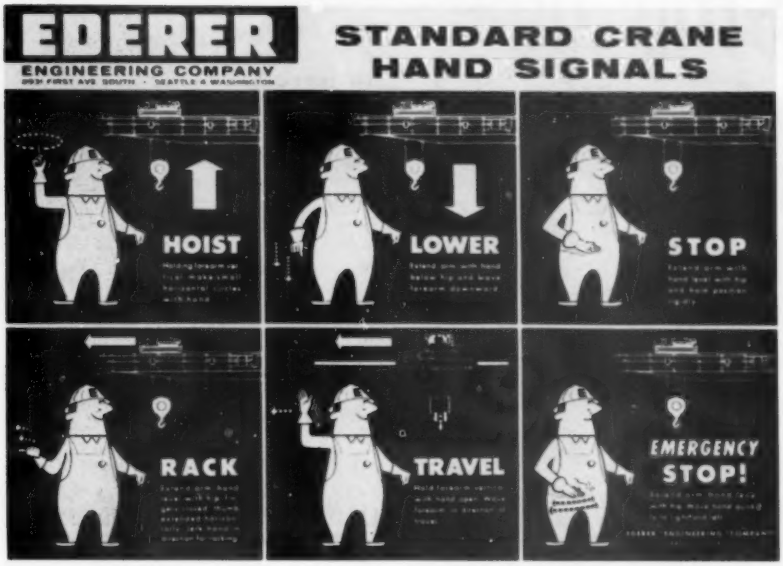
Problem: Dumping heavy loads of baled pulp

Problem: Dumping heavy loads of baled pulp into repulper in paper mill or converting plant.

Solution: An elevating platform driven by power cylinders designed to handle two tons of baled pulp. The platform was designed by Globe Hoist and utilizes two oil-hydraulic power cylinders under a hopper-type superstructure. Lifting stroke is 11 ft. The platform base of the hopper is hinged to the bolster supports on top of the ram. Here, a trunnion-connected hydraulic cylinder serves to tilt the hopper and discharge its contents. The lift-dump machine operates continuously throughout a 24 hour period, completing its operating cycle about 50 times. Oil pressure line feeding the small cylinder runs up through the plunger of the main cylinder. It is flexibly connected. Lifting speed is 20 fpm.

The entire cycle of operation is pushbutton controlled from a single station at a lower level where pulp is dumped into the hopper. A 7½ hp motor-driven oil pump supplies oil from a reservoir.

Problem: Communicating with crane operators



Problem: Communication between operating personnel on the mill floor and men operating overhead cranes.

Solution: A decal providing standard signals which can be posted prominently on floor and in crane cab. The decal, which is printed in cheerful blue, white and yellow colors, explains how the various signals should be given, also illustrates them by means of a cartoon figure.

The decal is easy to mount on walls, bulletin boards, windows or any place where it may be needed. It is provided in reasonable quantities by the Ederer Engineering Co., 2931 First Ave., So., Seattle 4, Wash., or may be obtained by contacting the company's advertising agency, McCarty Co. Advertising of Washington, 1117 Second Ave., Seattle 1, Wash. Full size of the decal is 7¼ by 9¾ inches.

Problem: Preventing accidents due to slippery floors

Problem: Preventing falls and broken safety records due to slippery, wet floors.

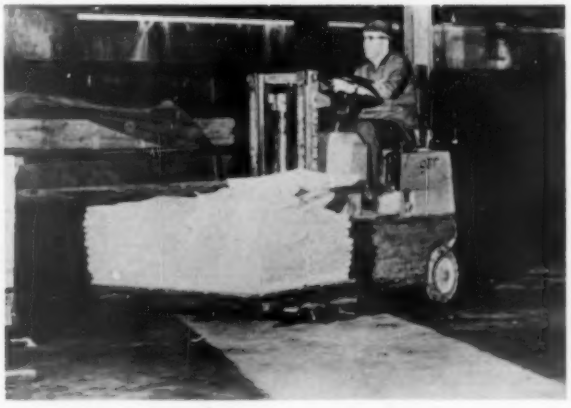
Places: Standard Packaging Corp., Lincoln, Me.; St. Regis Paper Co., Bucksport, Me.

Solution: Use a non-skid material which can be "painted on," dries fairly quickly and offsets hazards caused by lubricants or water.

The material is Dura-Grip, manufactured by Mine Safety Appliance Co. of Chicago. It first appeared about a year-and-a-half ago, has proven durable and effective. The material was used at Standard Packaging early in 1960 to prevent a hazardous situation near the knife grinding equipment. Dura-Grip was applied to 3 by 7 ft. area, sprinkled lightly with abrasive material and, following a one-hour drying period, excessive grit was swept away. A second coat, which was given six hours to dry, has proven effective and has been effective in reducing downtime (See photo at right.)

At Bucksport, the same material has been used in several applications covering nearly 1,400 sq. ft. of floors and walkways. St. Regis found that in light traffic areas the second coat dried in six hours; under heavy traffic, it required 16 hours.

Typical of its use is to give maintenance men a safe area for "hosing down" machine room areas, also to provide safe traveling for lift trucks in slippery areas.



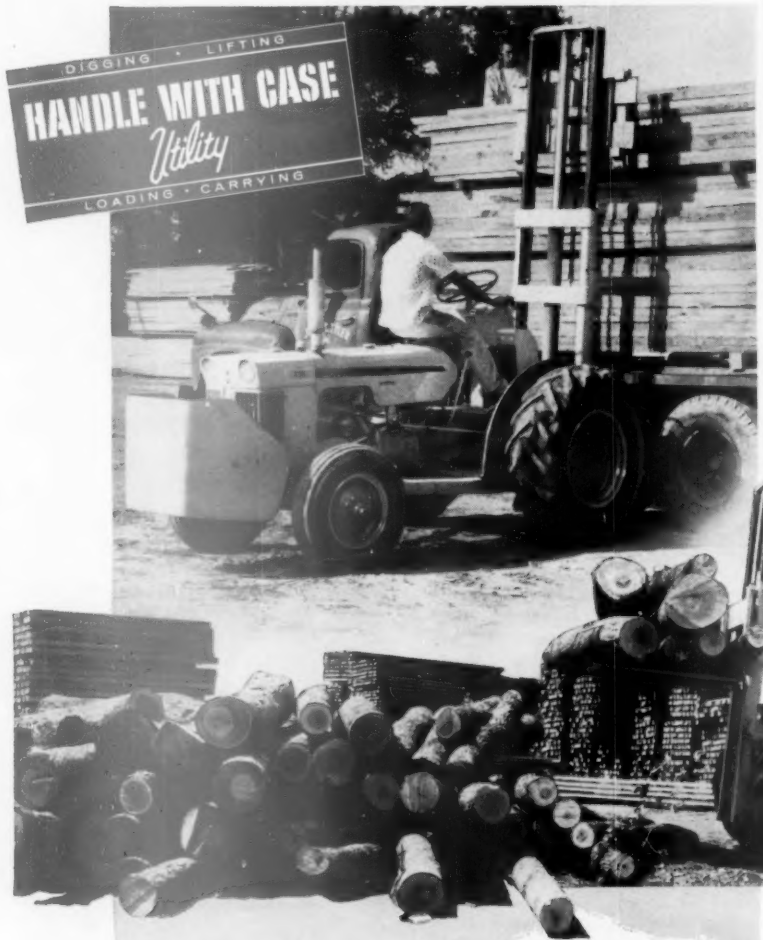
For lower-cost log and lumber handling

Cut round-trip time

Reduce your cost of handling lumber, logs and pulpwood . . . cut average load-haul-and-return time with a high-speed Case 430 *Utility* Fork Lift. You'll step-up production or reduce number, size (and investment) of machines needed . . . or free your fork lift operator for other part-time work.

To speed round-trips on- or off-pavement

Case 430 gives you up to 21 mph travel speed for high-rate haul on smooth surfaces, full-speed return on average ground. Higher speeds are practical because this 4000-lb carrier rolls easily over ruts and bumps, cushions shock of rough ground on giant pneumatic tires. These big tires also help you keep logs and lumber moving through mud, snow and other footing that "sticks" small-wheel lifts . . . afford best ground-grip and low wear-rate on *your* work with choice of three tread-types to suit any combination of work-surfaces.



Fast maneuvering and fork operation save you additional time on each pick-up and delivery. 430 steers easily, even at dead-stop, with *standard* power-steer. It shuttle-reverses instantly, and backs-up faster than forward speed in same gear. The fork raises your load smooth and fast . . . has positive "controlled" lowering, for safer, jerk-free operation . . . tilts 10° for easy pick-up, holding load, and log-handling. (For *continuous* log-work you'll want optional 50° hydraulic tilt-fork.) Model 430 is offered with 10½', 14¼', or 21½' mast . . . overhead guard standard on two larger sizes. Choice of *high-torque Case-built gasoline or diesel engine.*

Saves on multiple jobs

This Case 530 *Utility* Log Fork interchanges with pallet fork for lumber; with buckets for dirtmoving, sawdust, snow. Tractor has extra power and ruggedness for light skidding, tree-farm work, and other jobs in woods, on roads, at landing or mill.

See how the 430 can step-up your round-trips per hour . . . reduce handling costs. Call your Case Dealer for free demonstration, today. Or for complete information, write to J. I. Case Co., Racine, Wis., Dept B1791.

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PULP & PAPER

PULPWOOD world

GROWING BETTER TREES

A pictorial survey of various ideas to improve our trees

SURVEYING BARREN LANDS, one of forester's newest aids, a helicopter, clatters over cleared tract.

IF PREDICTIONS are correct, foresters are faced with the somewhat Herculean task of at least tripling pulpwood production in the next 40 years. By the year 2000 it is expected that pulpwood will be increased over the 1959 figure of 37 million tons by anywhere from 362% to 613%. Either figure is staggering.

Where will the wood come from? One answer is from the land already producing the 37 million cords. Through genetics, tree rotation, improved harvesting methods and other scientific means, cords per acre can be substantially improved. Noble experiments in Europe, particularly in Scandinavia, have proved it can be done.

Foresters are far from idle in the U.S. On the West Coast, a great deal of practical research has been and is being done on growing super trees and increasing per acre production. Several studies are underway in the South. And equipment to prepare land for regular tree rotation much the same way as crops are grown and harvested is constantly being developed and improved.

Predictions of this tremendous growth can be considered fairly reliable. They have been projected by three agencies, the USFS, BDSA and the RFF, and are based on individual estimates of paper growth over the next four decades. The USFS predicts 105 to 135 million tons of paper and paperboard by 2000 (compared with 1959's 34 million tons): BDSA says 155 million tons of paper and board; and the RFF forsees 240 million tons of paper products. This would require a staggering 264 million cords of pulpwood in the next 40 years!

Intensified land management will be needed, according to the conservative 1958 Timber Resource Review, to meet these demands. If management is achieved, there is sufficient commercial timber of pulpwood quality to make the grade. But, it adds, this would mean full use of cull trees, tops, waste wood. The TRR estimated that potential realizable annual growth possible on commercial U.S. timberlands is about 370 million cords.

To see how foresters are beginning to tackle some of these problems, turn the page. . . .

UNDESIRABLE BIRCH TREES ARE CLEARED in Wisconsin forest by Rhinelander Paper Co. in order to release young pines. Left, poison was applied in axe frills in 1952; center, four years later; right, stand today.

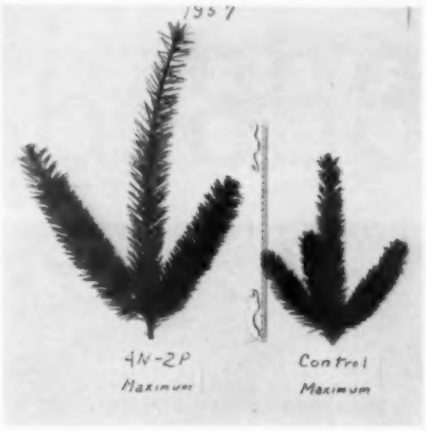
FAST, ADEQUATE REGENERATION of cut-over land at St. Regis Paper Co. in Washington is carried out by helicopter which sprays chemicals to control weeds. At left, another role of "chopper" is spreading fir seeds, chemically coated against birds, rodents.

SLASH BURNING made the difference on this Douglas Fir site where area was first burned, then aerial sowed with ¾ lb. of fir seed per acre. Picture at right shows same slope six months later, after annual groundsel covered ground, protecting young trees. Survey made a year later showed that more than 5,000 seedlings per acre survived due to this preparation. This is 95% mil-acre stocking. Cull woods can be reclaimed prior to the burning process to increase the wood utilization in areas.

REMOVING SNAGS such as those shown above greatly improves timber growth, eliminates fire hazard. Snags were still standing in 1959, although fire destroyed this particular tract in 1931. At right is the same area after the charred spurs were taken out, showing rapid growth following removal. The large "spear" at left in each picture helps identify area involved.

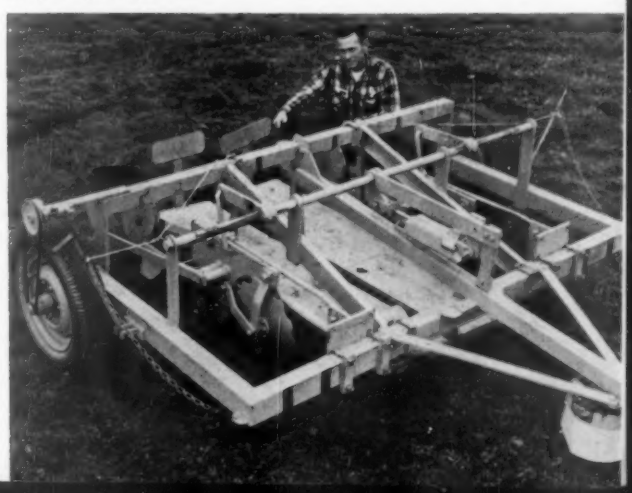
. . . . Growing better trees

PELLETIZED FERTILIZER developed by Crown Zellerbach is planted in hole beneath transplanted root stock. Result, below, is three year average growth in only two years.



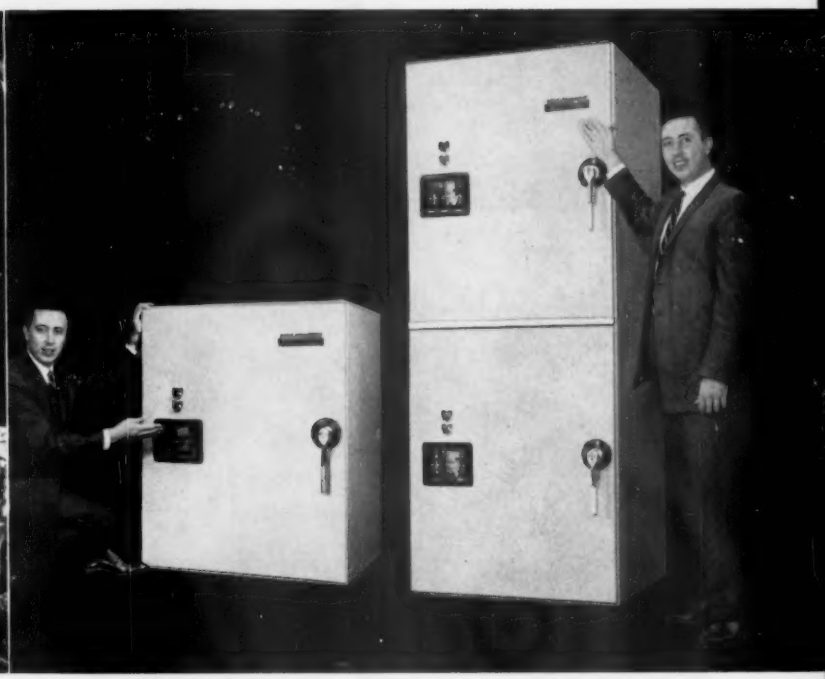
ELECTRONICS ENTERS FORESTRY here at Weyerhaeuser Timber Co.'s main headquarters. This is an IBM No. 407 computer in accounting dept. which is used to process forest inventory data and other forestry information for the woodlands department. It has speeded up jobs which once were done by individuals who had to use more time-consuming means.

EQUIPMENT DEVELOPMENTS will be needed to produce more trees. Samples: Left, logging arch minimizes disturbance to young growth, soil surface. Narrow gauge unit rides tractor-straddled area. Below, Oregon tree farmer Paul Goodmanson developed two-row tree planter for pastures. Buzzer tells operator when to plant seedling for proper spacing.



ideas and news:

Superior moisture resistance proved: Used for pump service in a low-lying work room of a Connecticut paper company, this Allis-Chalmers motor has repeatedly been under 5 to 6 feet of water. Because it is a Super-Seal motor with tough Poxeal insulation, impervious to moisture, it goes back into service when the waters recede with no time-consuming "bake-out" period.



So low, two fit where one used to go: This new SpaceMaker control center is the first completely new 2- to 5-kv motor controller development in more than a decade. New compact two-high design can cut floor space requirements in half. Complete drawout construction makes it the safest, most easily accessible controller on the market. New flame-retardent, track-resistant Super Pyro-Shield insulation adds to reliability, reduces size and weight. And, the all-new roll-out contactor has been designed specifically to cut maintenance time and costs.

Which of these productive ideas could be working for you?

A control unit that saves space. A motor that laughs off floods. These examples demonstrate the extra value that is standard with A-C . . . the greater efficiency and the added productivity which are yours when you buy A-C products, systems and services. Call your Allis-Chalmers representative for details on A-C "worth-more" features. Or write Allis-Chalmers, Industrial Equipment Division, 903 S. 70th Street, Milwaukee, Wisconsin.

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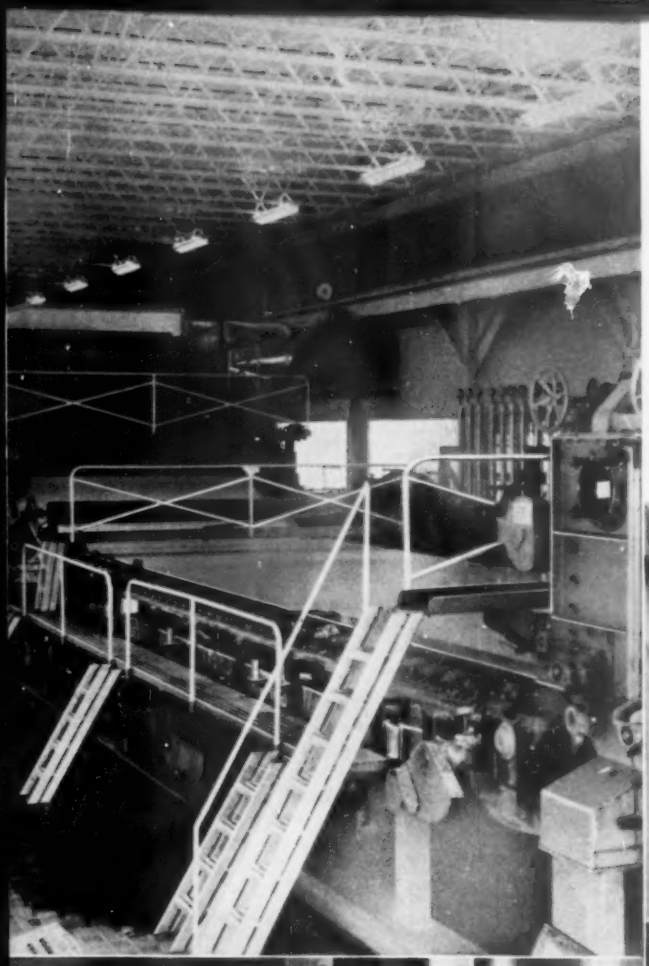


New "king size" machine is extremely versatile: Typical o the specialized equipment built by our Valley Iron Works subsidiary is this 160-inch glassine paper machine . . . one of the largest of its kind in the world. Running at speeds from 300 to 1200 feet per minute, it will produce up to 109 tons per day.

How to cut lime costs by 50%: An Allis-Chalmers lime recovery kiln produces lime from waste lime sludge at half the cost of new lime. Plants in the sulphate pulp industry can recover most of the lime used in liquor processing as well as water softening. Result: Practically no new lime to purchase — No waste lime sludge to dispose of.

One-man maintenance for new vertical pump. This redesigned A-C pump provides easy accessibility to internal parts. One mechanic can remove entire rotating element without need of an electrician to disconnect the motors or a pipe fitter to break piping. In addition, vertical design takes 25% less floor space than horizontal units.

A-C INDUSTRIAL EQUIPMENT DIVISION: motors, generators, controls, rectifiers, pumps, compressors, crushers, mills, screens, kilns, coolers, industrial systems.

OTHER A-C PRODUCTS: thermal, hydro and atomic electrical generating equipment; switchgear, transformers, unit substations; tractors, earth-moving equipment, engines, lift trucks.

ALLIS-CHALMERS

starts on p. 15 . . . lining expansion-caused stress.

Beaumont Thomas, vice president in charge of research and development, Stebbins Engineering & Mfg. Co., previously recommended such an amendment when his firm found inconsistencies in making such allowances, if any were made at all. Stebbins cooperated in this paper. Ron Flynn of Stebbins set up equipment for strain and temperature readings at various digester stations and instructed in equipment use.

Eight recorded digester explosions between 1886 and 1930—all in lined sulfite digesters—were reviewed and the data used for comparison purposes. The causes: In Herten, Switzerland in 1886, by cold draught; in Podogra, Austria, in 1901, by butt strap failure following repeated bending; in Watertown, N. Y., in 1902, and in Kelheim, Germany, in 1910—both by steaming up too rapidly; in Grand' Mere, Quebec in 1912, butt strap failure after repeated bending; in Heidenau, now East Germany, in 1926, defective riveting and low elastic limit; in Lancey, France in 1927, action of lining expansion on shell and metal fatigue, and in Berlin, N. H., in 1930, faulty steel embrittled in service by repeated bending.

After the Grand'Mere explosion, all new digesters were built with double butt strap. But some with single butt strap, as the one in Berlin, remained in use. Watertown and Heidenau vividly showed danger of cold drafts. In these explosions, 33 were killed and 39 injured, but of these numbers, 20 were killed and 23 injured in the two German explosions. All explosions except Berlin occurred in winter.

How to keep shell stresses to a minimum: (1) When digester is out of operation several days, bleed steam continuously to keep outside shell temp. at 150 degrees F.; (2) For long shutdowns, use small quantity of steam until outside shell is at 150 degrees F.; (3) When chips are used for internal inspection, arrange a slow cook; (4) Prevent cold drafts reaching digesters.

With possible exception of boilers, possibility of digester explosion is the most serious hazard in a pulp and paper mill. Stress measurements had not been made on digesters cited in the explosion cases. We are now in a fortunate position of knowing beforehand what can cause failure. We know digesters can be overstressed in the first cook after an internal inspection. At Port Alfred, measuring will show if present lining reaches maximum growth, and when lining is removed, to learn if further growth takes place in the backing course.

Mixed Ammonium-Sodium Base Pulping—J. W. Wilson, director, and H. Worster, group leader, Columbia Cellulose Co., Ltd., Prince Rupert, B.C.

Used bleach caustic soda was augmented with ammonia. The raw pulp K. No., alpha cellulose content and screen rejects of these mixed base pulps were equivalent to those of ammonium- and sodium-base pulps and superior to direct steamed calcium-base raw stock.

Difference in cooking time required to 200–300 cp. raw pulp viscosity between ammonia and used bleach caustic base acids were greater than those between ammonia and pure sodium-base acids. It was found that the hemi-celluloses contained in the bleach plant waste liquors bind "extra" sodium and thereby affect cooking time to a given raw pulp viscosity. Cooking time was extended and raw pulp properties were improved progressively as the amount of hemicellulose in the cooking acid rose. The mechanism involved in better delignification due to presence of the hemicelluloses is not completely understood.

Groundwood Storage System—Design and Operation—T. W. Dobson, groundwood supt., and S. E. McGurk, design engineer, Donnacona Paper Co. Ltd., Donnacona, Quebec.

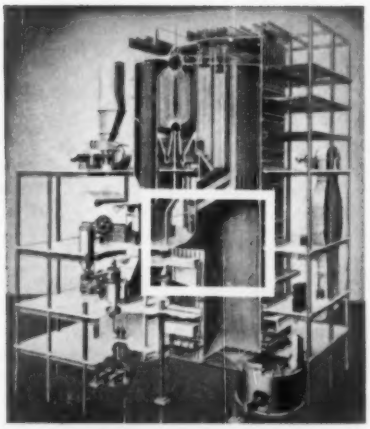
Considerable improvement in control of groundwood quality, freeness

MORE EQUIPMENT DISPLAYED AT CANADA meeting included digital draw and speed indicator (left) distributed by Dynapar Corp., subsidiary of Louis Allis Co., which displays percent draw to .1% accuracy, paper speed to 1 fpm accuracy, requires no calibration. At right, Kason separator used for knot dewatering, starch size, coating clarification. Other models applicable for chip screening, barker water clarification.

How Tangential Air Improves Furnace Performance

In the C-E Recovery Unit, secondary air is introduced tangentially above the liquor sprays by an exclusive C-E method that intimately mixes high velocity air with unburned gases. Combustion is rapid and complete. Since the tangent jets of air give the gas mixture a turbulent, spiralling motion, longer travel within the furnace results. This eliminates stratification and reduces the amount of unburned char entering the screen and superheater zones. Temperature of exit furnace gases is generally lower and more uniform, too — minimizing slag deposits.

C-E will be glad to discuss with you these and other advantages of *tangential* secondary air — which add up to greatly improved furnace performance.



The C-E Recovery Unit. Section of illustration has been enlarged to show the upward-spiralling gas path produced by C-E's exclusive *tangential* introduction of secondary air. Inset (above, left): diagram of tangent principle.

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CANADA: Combustion Engineering-Superheater Ltd.

C-258

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE

and consistency was obtained. Also, reduction in power and labor costs.

An outdoor tank of 200 tons capacity was built. As the mill operated about five days a week on machines, magazine grinders could refill the storage tank in 16 hours before machines started. Theoretically, the tank would be empty at the end of the week. A 50 ft. diameter tank permitted its location close to the groundwood mill, but without obstructing possible expansion.

Cost of plastic or rubber lining was deemed too high, so corrosion allowance of main steel body was increased to ¼ inch and in agitated zone, to ⅜ inch, on the basis that this would give useful shell life of 50 to 60 years. The roof is self-supporting coolie hat structure, with spiral staircase from ground to roof for access. All openings in tank wall are flanged nozzles. Greey Mixing Equipment supplied a horizontal side 3-blade propeller for agitation, with V-belt drive from 300 hp 400 rpm motor.

Three stainless steel fitted Canada pumps are used, also a DeZurik regulator which adjusts pipeline consistency to 3%, and a Fischer & Porter viscosity tube type regulator adjusting consistency to proportioners to 2.7%. Instruments control the agitator, levels and valves. The tank is well insulated with wool, polyethylene vapor barrier and asbestos and glass fiber on the roof.

The tank permitted shut down of three electrically driven pocket grinders. Of three lines of hydraulically driven grinders, one was converted to a generator, and another is needed only occasionally. Labor cost was reduced 0.3 man hours per tons, or about 18%. Total mill power savings are 6% per year. Savings will pay cost of the storage system in two years.

Material Handling without Smash-ups—Julius A. Draper, director of safety, Consolidated Paper Corp. Ltd.

A 1959 report showed 20% of Quebec pulp and paper mill accidents were in materials handling and of 71 accidents analyzed, 19 were in wood and 14 in paper roll or bale handling. In his own company's Canadian mills, there were 53 materials handling accidents of 178 accidents in 1940-1-2. These were reduced in 1957-58-59 to only 11 materials handling accidents out of a total of 61. The total was reduced 66%, in materials handling 79%, presumably by methods the author advocates.

He urged proper mechanical equipment, adequate guard rails and warning devices, all in good condition. Also good lighting. He stressed the need for manhole covers that will not be displaced by loads. Also he emphasized the need for improving the use of core-shaft handling gear on rewinders. He said there were many mechanical devices to make this easier and safer.

But the major part of his talk was devoted to better training and handling of people at the department level. Stunts, gimmicks, posters, prizes and dinners won't do it, he said. "For lasting effect, we must prove out people—their thinking, attitudes, health of mind and hearts," he said. He urged the use of "Techniques of Supervision," copyright 1954, by the National Foremen's Institute, Inc., written by Alfred Lateiner and E. I. Levine. The first three chapters, he said, tell how to understand and deal with people, how to win cooperation and improve morale. There is also a chapter on controlling accidents.

Automatic Weighing Techniques in mills—F. T. Schooley, materials handling coordinator, Alliance Paper Mills Ltd., Merritton, Ont.

Many mills are using techniques in vogue 30 years ago.

Of weight sensing devices, the pendulum dial scale and electronic load cell with dial indication are most adaptable. Many mill accessories can be furnished with scales, the automatic printer, for example. Many combination units are available.

Weight sensing devices can be installed almost anywhere—on car or truck dumpers, bins, silos, conveyor systems, cranes, etc. They virtually eliminate human errors.

Howard Smith at Cornwall, Que., is negotiating for a scale designed for continuous weighing of round wood. At Cascade Kraft Corp., Wallula, Wash., a Howe 100 ton scale is integrated with a truck and rail car chip dumper.

The author suggested weighing and recording of weights of ingredients in stock preparation—in addition to flow metering, proportioners, etc. Marathon Southern, USA, has a system of automatic weighing, mixing and preparation of starch, titanium dioxide and size coating purchased in bulk.

Stadler Hurter International proposes a choice of two weighing techniques for a European mill. In one case, as a roll is positioned on the scale, a manual data input station indicates roll size, order number, etc. A weigh button adds weight and the information is fed to a bank of six automatic typewriters where bills are typed automatically—six orders at a time, with consecutive numbering of each item of each order. In the other plan, information is fed to a punch-type machine and thence to data processing.

Strathcona Paper Co., of Canada, has a fully integrated electronic data processing system of machine accounting. Customer invoicing is speeded up, billing accuracy is improved, statistical reports are speeded.

Dominion Tar & Chemical will install soon an I.B.M. 1401 data processing machine to handle punched cards for sales analysis, costing, etc., and also to solve engineering mathematical problems. Integrating automatic weighing with data processing would offer "tremendous advantages in all areas."

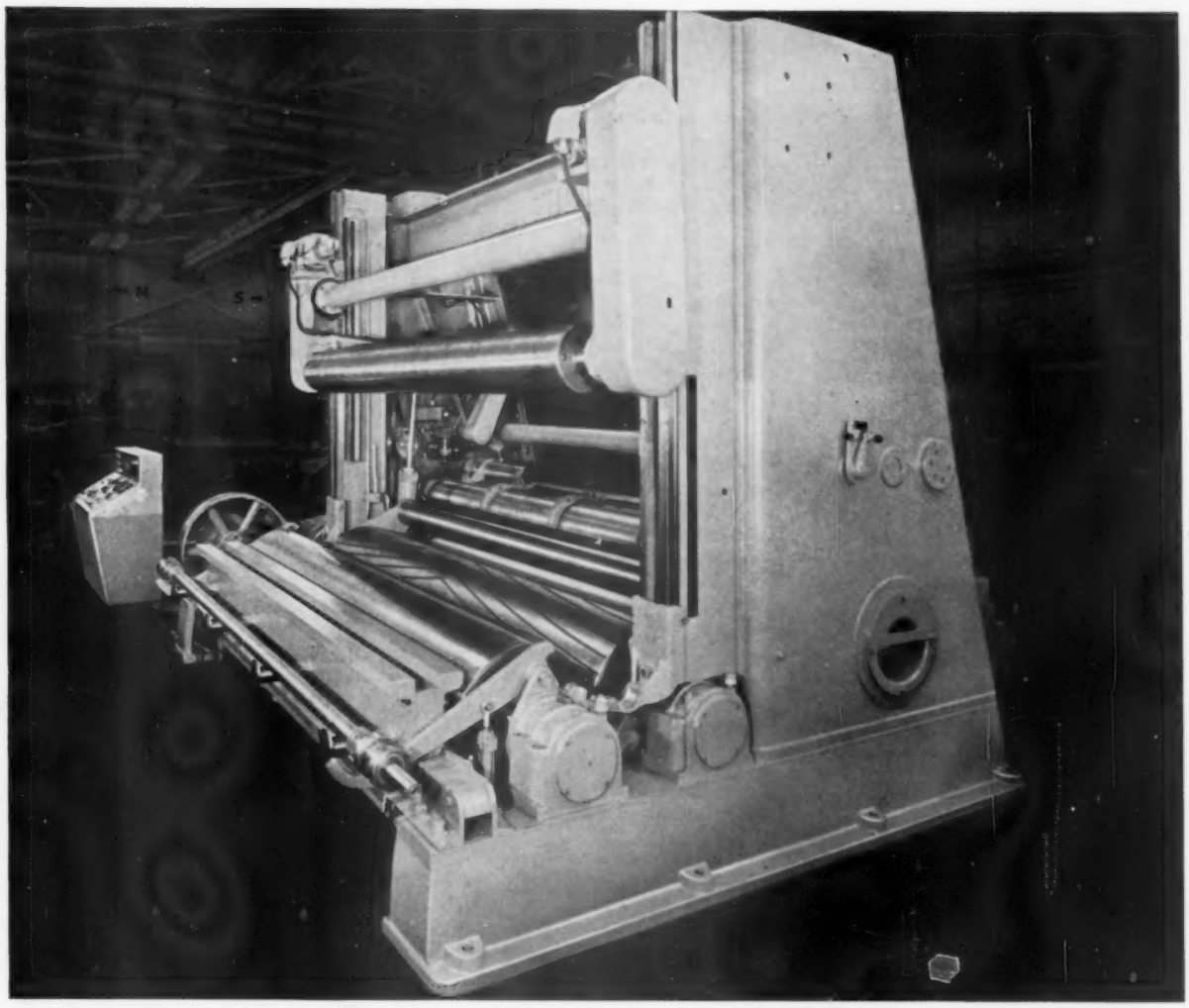
Interreactions of Smelt and Water—Charles E. Rogers, H. P., Markant and H. N. Dluehosh, Babcock & Wilcox Co., Barberton, Ohio.

Various smelts of pulping processes were brought into contact with water or green liquor. This generally effected reactions of varying explosive proportions. It seems reasonable to conclude from the resulting data that the reactions of smelt from the soda process with water are predominantly physical and are caused by the rapid evaporation of water. In contrast, the reactions between water and kraft (sulfate) smelt with sodium sulfide present are chemical reactions as represented by the equation $Na_2 + 4H_2 \rightarrow Na_2SO_4 + 4H_2$. Appreciable quantities of sodium sulfate were found in the smelt and high percentages of hydrogen were found in the gases after the reactions and each increased with the increase in temperature of the smelt.

Causes and Prevention of Condensate System Corrosion—R. T. Hanlon, process engineer, Alchem Ltd., Burlington, Ont.

Purpose—to differentiate between metal losses caused by chemical conditions (carbonic acid, dissolved oxygen, process contamination and steam carryover) or by mechanical conditions and combinations of both.

Some years ago the author and associates devised a simple test nipple arrangement for evaluating corrosion of condensate return systems. Three specially prepared nipples, each nine inches long and with inside diameter of one inch, are installed in a manifold in any point in a condensate system where corrosion evaluation is indicated. Nipples are removed in se-



THE SPEEDMASTER

New Langston winder handles large-diameter rolls of both paper and board, speeds up to 7500 fpm

This all-new-design Langston winder incorporates many features that make it possible to wind superior quality rolls over a wide range of conditions. Built-in provisions insure uniform roll density, prevent annular rings, and readily permit separation of rolls. Flexibility of operation, due to design features, facilitates winding of any grade paper —including dense printing grades, both coated and uncoated, where large-diameter rolls are required.

Proper web tension control is essential for superior winder performance. The Speedmaster is available with either manual, constant or tapered tension, as desired. Details of design vary to suit application requirements. The draw between the rewind drums can also be controlled automatically. As the weight of the roll increases, loading of the rider roll is automatically compensated. And toward the finish of a large roll, the rewind shaft brackets can be power lifted to reduce nip pressure further.

Slitters are of the new Langston precision design, guaranteed to run true within .001 in., thereby minimizing variations in web widths. For more precise control over spreading, the slitters and spreader roll are carried in a common cradle, rotatable over 60 degrees.

Operation is facilitated by an automatic threading device. Options available are: automatic shaft loader, roll ejector, power engagement and disengagement of slitters, and shaft stripper. The ways for the rider roll and rewind shaft carriages are removable for easy maintenance.

Write for detailed engineering information on this new Langston *Speedmaster* winder. Samuel M. Langston Co., 6th & Jefferson Sts., Camden 4, New Jersey.

Langston LEADERSHIP . . . BY DESIGN

quence after 30, 60 and 90 days and replaced, not by ordinary steel pipe, but by similar test nipples. Removed nipples are dried, sealed and sent to laboratories for corrosion evaluation. Hundreds of tests in U.S. and Canada have justified this test system, he said.

It is no longer prudent to apply treatment without prior investigation as to actual corrosion causes. First, it must be determined if metal loss is from chemical or mechanical attack. Next, use of nipples will provide realistic indices of corrosion conditions. Finally, a corrosion inhibitor should be selected on the basis of findings and the nipples again used to check on inhibitor.

New Technique for Surface Sizing with Polyvinyl Alcohol—B. A. Beardwood and E. P. Czerwin, Vinyl Products DuPont Co., Wilmington, Del.

Use in past of polyvinyl alcohol has been limited because it penetrated too deeply. A technique uses a pretreatment of borax solution to get Elvanol polyvinyl alcohol sizes on the sheet surface. The two-stage treatment has been widely used. On all substrates the size demonstrated excellent resistance to mineral oil penetration and improved resistance to turpentine penetration. It was compared on equal cost basis to other sizes using unbleached kraft linerboard as the substrate. The new size technique gave superior oil holdout and was comparable to other sizes in IGT printability, water absorption and bursting strength. Properties of papers with this sizing are essentially unchanged after aging.

Selecting Supercalender Drives—A. G. Spencer, chief project engineer, Champion Paper & Fibre Co., Canton, No. Carolina.

The main drive should provide (1) thread speed to run speed from same motor, (2) good no-load to full-load regulation at any speed, (3) smooth acceleration and deceleration, (4) sufficient breakaway torque to prevent surging, and (5) emergency stop feature.

The rewind and unwind drives should provide (1) controlled tension unwind and rewind, (2) tape tension on the rewind, (3) inertia compensation, (4) stalled tension on both unwind and rewind, and (5) motoring of the unwind stand.

His review of drive and control system is largely descriptive and general in nature. Staff men at Alliance Paper Mills provided test data and B. F. Perkins Co. provided additional data and consultation.

A conclusion from the amassing of much empirical data is that further studies should be made on power requirements of supercalenders. The method of taking power readings is "most important" and voltage, current and speed must be rechecked at each reading.

Instrumentation on Bauer Digesters—D. P. Michel, chief electrical engineer, Bauer Bros. Co., Springfield, Ohio.

The Bauer Rapid Cycle Digester is small, stationary, vertical, completely automatic, used for semichemical and high yield pulps, acid, neutral or alkaline. Pressures up to 300 psi, batch cooking. Used in America and abroad, its instrumentation is simple, cooks may be very fast, procedures are flexible, cooking controls are accurate. Electrical static logic systems are used. Little or no attention is needed once initial settings are established. Maintenance is low.

The Bauer M&D Digester is for continuous flow of cooked chips. Loading, processing and discharging are continuous, each phase being accurately controlled. A Bauer chip feeder meters via Bauer-Grenco rotary inlet valve. Chips travel via unique conveyor flight compartments, chain driven, down through liquor, while being steamed. Chips pass on the top side of the tube and return to discharge valve on the bottom side. Flows, pressure and temperature are controlled and recorded on a big graphic panel.

An IBM 610 computer is used to determine optimum operating points prior to startup. It may eventually be integrated with the entire control system to insure optimum quality.

Roll Grinding with Abrasive Belts—R. R. Holmes, res. engineer, Provincial Paper Ltd., Thorold, Ont.

Rolling grinding with abrasive belts is an established production method, the author says. Chilled cast iron, rubber and other types of paper machine rolls can be ground satisfactorily. Belts are used in conjunction with a special back-up wheel taking the place of the conventional rigid grinding wheel.

The techniques are somewhat different with abrasive belts and it is important that the operator must not be opposed to this change and he must make an effort to take advantage of the new tool.

Material costs are 10 to 25% higher for the new method but savings in labor have more than offset this to reduce total costs of roll grinding by some 25%. The author says the quality of work is at least equal to, and "more likely" better than that by the conventional bonded grinding wheels. Labor costs were reported reduced at least 40%. An operator works only three or four days to do what formerly took five days or more.

The two steps in the method are stock removal and finishing. For calender rolls, an aluminum backing wheel and 36 grit belts are used initially, then 50 to 80 grit belts when close to dimension, and finally 80 to 120 grit with rubber backing wheel for finishing. For Stonite rolls, the range is from an old 36 or 80 grit belt to 120. On rubber rolls, similar belts are used, with slight variation in technique.

Color Reversion of Bleached Pulp—Howard Rapson, Professor of Chemical Engineering, University of Toronto.

Cellulose is bleached by irradiation with ultraviolet light at low temperature, but is simultaneously made more sensitive to yellowing concurrent or subsequent heating. Sensitivity to damage by light is shown to increase with the carbonyl group content of oxidized cellulose.

Moisture plays a very important role in the yellowing or aging of pulp containing aldehyde groups on carbon atoms 2 and 3 of the anhydroglucose units of cellulose. Two months at atmospheric temperature and humidity caused more color reversion than eighteen hours in the relatively dry atmosphere of an oven at 105°C for highly oxidized cellulose. At 70°C yellowing increased sharply as the relative humidity increased from 35% to 100%. Therefore heating in a constant humidity chamber is recommended for a rapid aging test.

Aging of pulps containing C_2 and C_3 aldehyde groups was found to continue at an accelerated rate in the atmosphere after oven aging at 105°C. This "post-oven aging" is attributed to the moisture regained after removal from the oven.

Hypochlorite at pH7-8 is shown to produce ketone groups on carbon atoms 2 or 3, and these are more harmful for color reversion than aldehyde groups on the same carbon atoms. Above pH9 such ketone groups are eliminated and carboxyl groups predominate, but these cause much less color reversion. Thus pH10 is confirmed as the optimum pH for hypochlorite bleaching to minimize color reversion. ■

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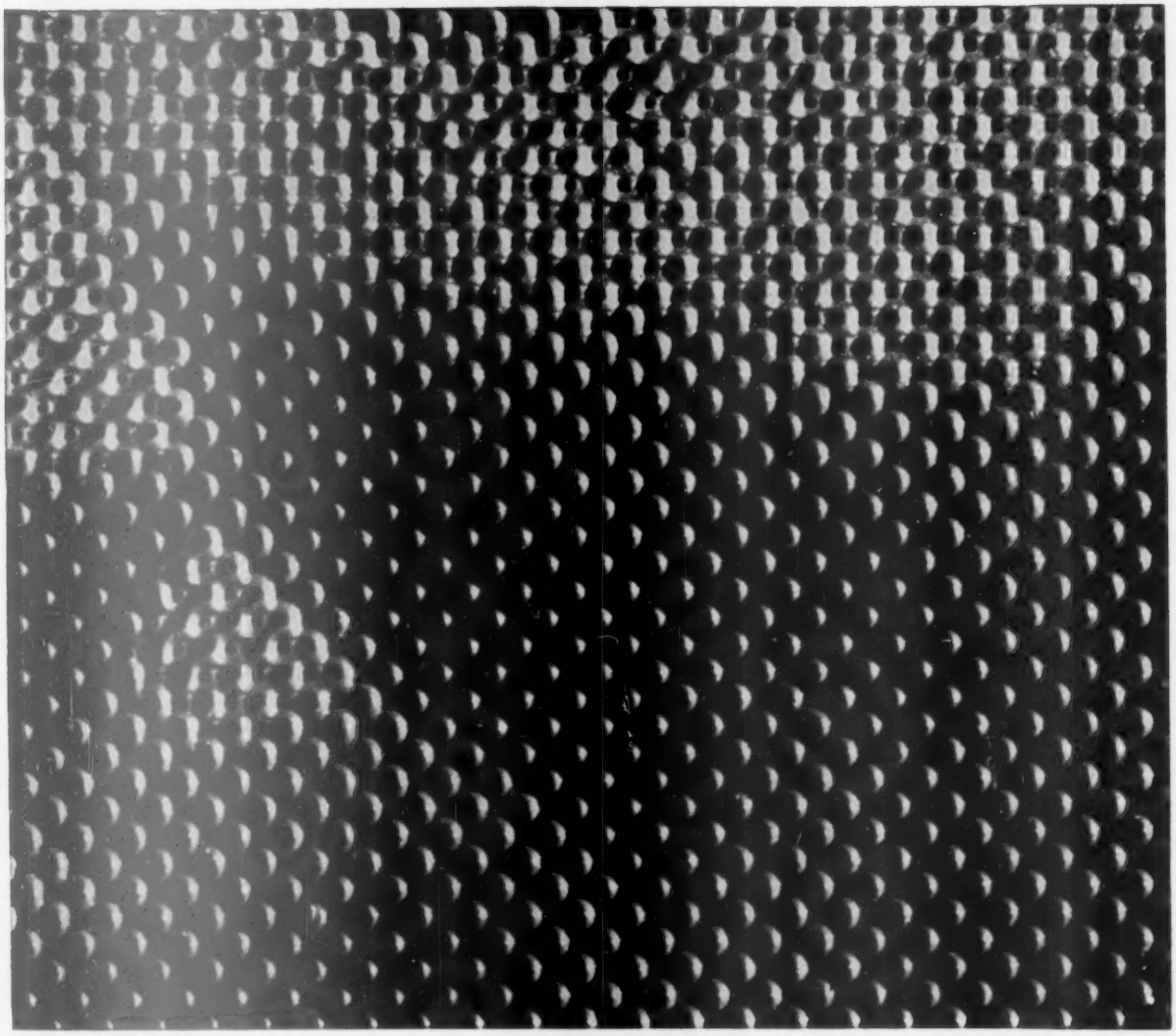

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• Exceptional Starch Compatibility

Here is the newest development in latex for paper coatings, new Dow Latex 630 . . . raising quality to a new high and giving you new manufacturing advantages and new selling features! New Dow Latex 630 gives you better control of paper uniformity . . . helps you stabilize paper surface quality . . . brings printing closer than ever to really true-to-life reproduction.

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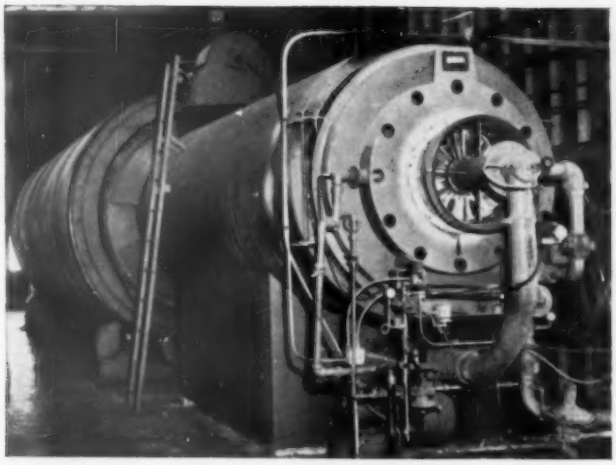
Gray Products Co., Waverly, Virginia, uses this Heil dryer to reduce moisture content of material to a uniform level in the production of particle board.



This cutaway shows multi-pass drums of a Heil dryer. Heavy particles move more slowly through the three cylinders of the multi-pass drum. Lighter particles pass through faster. Result: *uniform* drying.

Every Particle Is Dried Uniformly in a HEIL Dryer —and Fast!

There's almost no difference in the moisture content of particles that have gone through a Heil dryer — regardless of size. That's because the drying process takes into account the size and weight of particles.

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NEW EQUIPMENT . . .

starts on p. 25 and numerous extra bolts used to join butting random-length pieces. Installation in fraction of time required for other flooring.

Specifications: Flooring utilizes latest electronic laminating processes and new waterproof glues to provide full trailer- or truck-length boards up to 12 in. in width. Shipped pre-cut to exact specifications, Dura-Wood is available with shiplap, center-match or special machining.

Supplier: **E. L. Bruce Co., 1648 Thomas, Memphis 1, Tenn.**

Hydraulic oscillator

. . . all new, simplified

Applications: For doctor knives, showers, felt conditioners and similar equipment where positive, controlled oscillating motion is required.

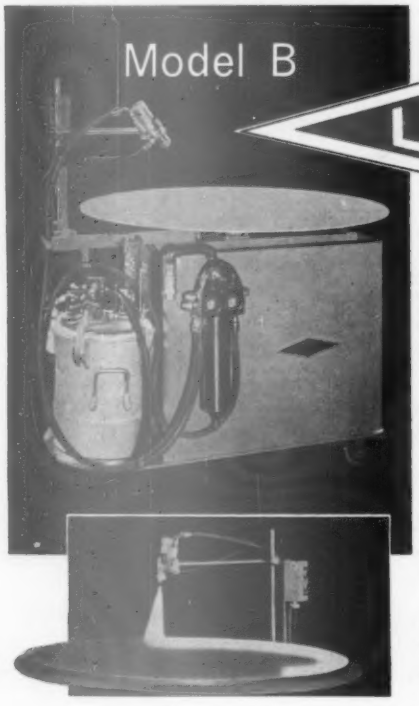
Advantages: Totally-enclosed reversing valve requires no mechanical shifting means. Operating cylinder is directly connected to oscillating mechanism. Automatic safety overload included. Valve and cylinder are subplate-mounted, facilitating easy removal. Normal wearing parts interchangeable.

Specifications: Remotely-mounted power unit is complete with electric motor and motor starter, pressure control and pressure gauge. Stroke range of from ¼ to 100 in. available. Traversing rate either fixed or variable. Power unit and reversing valve can be remote from operating cylinder. Single power unit may operate as many as 40 doctor knives.

Supplier: **Tomlon Corp., 199 Jackson St., Trenton 10, N. J., Tel: EXport 3-5350.**

Announcing a **NEW** Design!

AUTOMATIC Head Gluer



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The LAMB Automatic Head Gluer glues heads up to 72" diameter—*fast, automatically!* Takes 6 to 7 seconds per head . . . applies a *thin*, economical layer of glue. Makes a better looking package . . . eliminates danger of glue dripping on roll ends. Available with one or two spray heads, depending on requirements.

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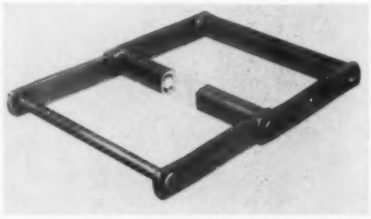
Drag chain

. . . special attachments available



Applications: For drag conveyors in paper mills, sawmills and similar applications.

Advantages: All-steel chain is designed for high impact and tensile loads. It features easy maintenance. New WS (welded steel) chain features links symmetrically designed with identical sliding area top and bottom that permits turning the chain over for added service life. Other features: medium high carbon steel sidebars, sturdy pins, new barrel design. Chains can be easily reworked in the field if distorted or damaged in operation. Special attachments can be welded to the steel links even after installation. Favorable strength-weight ratio results in low operating costs and easier handling during installation, replacement or repair.

Specifications: WS chain operates on same sprockets as H malleable iron and H combination drag chains. They are available in four sizes—6- to 8-in. pitch in widths of from about 7 to about 16 in.

Supplier: **Link-Belt Co. (folder 2772), Dept. PR, Prudential Plaza, Chicago 1, Ill., Tel: RAndolph 6-7790.**

Strapping sealer

. . . presents new approach

Applications: For sealing steel strapping on paper rolls, pallet loads, etc.

Advantages: Said to be first major development in steel strap sealing in more than four decades, Microgrip's "secret lies in **turn to p. 79**

These swatches represent two entirely different titanium dioxide paper coatings.

One is an anatase grade, the other is a rutile grade.

CAN YOU TELL WHICH IS WHICH?

ONE IS THE NEW...

These two swatches of TiO_2 pigment have been applied by silk screen so that you can compare them quickly on this printed page. The formulas are nearly identical except that one contains a rutile grade, the other new *LD-C* anatase.

Although you'll achieve superior coating with regular paper mill machinery, the proof is there . . . new Glidden *LD-C* (on the right) has properties comparable to the rutile. The brightness of anatase is combined with the ease of dispersion and low viscosity features of rutile.

New *LD-C* is equally well suited for on and off machine, size press and calender coating. Compatible with all other common paper coating pigments and adhesives.

Being an anatase grade, new *LD-C* is for coating of all nonwaxing, plain and printed paper and board. And *LD-C* is priced as an anatase. Some users are obtaining savings of up to 2¢ per pound.

Higher machine speeds, heavier coating weights and other advantages are inherent in new *LD-C*. To get the full story, or samples,, call your Glidden representative or our Baltimore headquarters.

GLIDDEN ZOPAQUE® LD-C

anatase grade TiO_2 especially developed for paper coating

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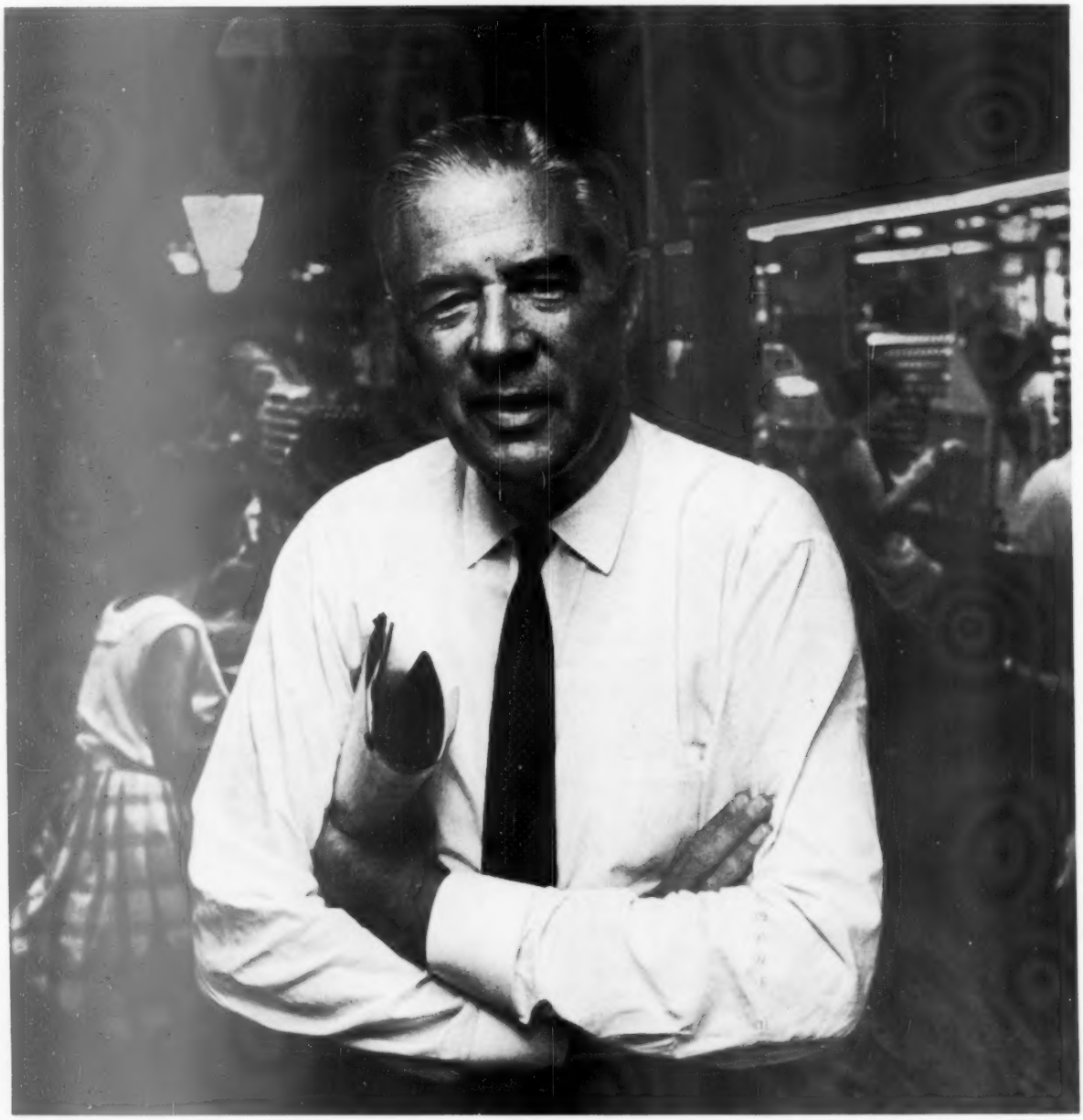


PHOTO ON LOCATION BY EHRENBERG

Where there's business action, there's a businesspaper . . . PULP & PAPER

BUSINESS PAPER LEADERSHIP ABP

AUDITED PAID CIRCULATION ABC

One of a series of advertisements prepared by the ASSOCIATED BUSINESS PUBLICATIONS

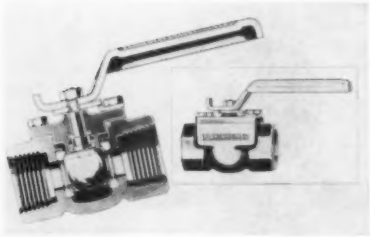
starts on p 76 special high-friction mastic compound that coats inside surface of strapping in area within which crimping action occurs. When crimps are applied, mastic compound "bites through" slippery strap coating to provide strong frictional bond between metal surfaces. Seal is said to combine high joint strength with high impact resistance and permits sealing to be done with minimum of effort.

Specifications: Seal use is confined—for the present—to painted, painted and waxed or waxed Magnus and Heavy Duty strapping in 1¼-in. widths. Two type sealers are now available. Both are 22 gauge. The 114G is 2¼ in. long and may be used with either a B-1435 or UB-1435-50 sealer. Greater length of Type 107G—2 15/16 in.—enables it to be used with N-1435 pneumatic sealer, as well as with the two hand-powered models.

Supplier: **Signode Steel Strapping Co., 2600 N. Western Ave., Chicago 47, Ill., Tel: ARmitage 6-8500.**

Ball valves

. . . easy maintenance



Applications: For flow control of liquids, slurries, etc.

Advantages: New line is said to be engineered for simplicity of design and maintenance-cutting operation. Top-entry feature makes possible easy in-line maintenance. Lunkenheimer has incorporated principal ball valve features: straight-through flow, low friction, smooth quarter-turn operation, compactness.

Specifications: Fig. 700 is available in bronze body, screw ends, pipe sizes ¼ to 2 in., with Teflon on Buna-N seats and seals. Valve has top entry through removable cover. This exposes ball, easily removed by tool on valve's specially-designed handle. Ball is flat on both top and bottom, so as to be easily removed from body for easy access to seats in the event they need replacement. Self-aligning ball rides high on seats, sealing at high or low pressure without springs or bearings. O-ring seals of Tefflon or Buna-N protect against leakage at stem and cover. Lunkenheimer is readying stainless steel line, with carbon steel to follow.

Supplier: **Lunkenheimer Co., Cincinnati 14, Ohio.**

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Bondstrand is no ordinary plastic pipe: Made of tension-wound glass filaments, impregnated with chemical-resistant resin—either epoxy or polyester—it is strong as steel . . . yet only one-eighth the weight.

THE PROBLEM	THE LOCATION	THE SOLUTION
Carbon black slurry destroyed schedule 40 steel pipe in 30 days	Synthetic Rubber Plant	Bondstrand installed 1959. No failure. Performance still rated excellent
Chlorine Dioxide water caused failure in stainless steel pipe	Paper Plant	Bondstrand installed 1958. Performance still rated excellent
10% Ferric Chloride solution destroyed ordinary steel or stainless	Sewage Treatment Plant	Bondstrand installed 1958. Performance still rated excellent
Salt water well injection at 1600 psi	Petroleum Production	Bondstrand installed 1958. No failure. Performance still rated excellent

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STRICTLY PERSONAL . . .

starts on p. 27 . . . and development. Mr. Geiger received a bachelor degree in chem. engineering from Tufts University. Before joining Oxford in 1934 he spent two years in Mexico with the American Smelting and Refining Company and several years with a subsidiary of General Mills, Inc. He has been with Oxford for 20 years—Maurice R. Castagne

Midwest

New Staff Members Named at Appleton Institute

The Engineering & Technology section at the Institute of Paper Chemistry, Appleton, Wis., reports three new staff members:

Donald Brown will conduct studies on atmospheric pollution abatement and laboratory investigations in bleaching. He was formerly technical asst. supt. for Penobscot Chemical Fibre Co., Great Works, Maine, and has held positions in metallurgy with U. S. Steel Co. and Aluminum Co. of America.

Lloyd White and **Bruce D. Andrews** will work in fluid mechanics, specifically on flow resistance of fiber beds and determination of filtration resistance.

Mr. Andrews was on the Institute staff from 1954 to 1959 and rejoined the Appleton school recently after association with Manhattan Rubber Mfg. Co. at Neenah, Wis. Mr. White is a recent graduate of Columbia Univ. with an M.S. degree in chemical engineering.

Pittsley

Halder

Wausau Paper Mills Co., Brokaw, Wis., names **Donald I. Pittsley** safety director. He joined the firm more than 10 years ago, being assigned to the Engineering dept. until 1958, when he was appointed timekeeper. . . . At the same time, **Robert (Bob) Halder** became purchasing agent. For the past 13 years he has been safety director and prior to that served in the maintenance dept.

Arthur M. Schmalz, vice pres., and **Albert A. Klammer**, supt. of the asphalt department, have retired after a combined service record of 99 years at Thilmany Pulp & Paper Co., Kaukauna, Wis. Mr. Schmalz joined the firm in 1905, became a vice pres. in 1957. Mr. Klammer was named asphalt department supt. in 1943. He is succeeded by **Reuben B. Rutter**, formerly asst. supt. . . .

Strauss

Coan

Thilmany Pulp & Paper Co., Kaukauna, Wis., reports two promotions in its manufacturing division. **Robert E. Strauss**, former chief industrial engineer, becomes production services mgr.; he is succeeded by **Marlin M. Coan**, a staff member in the Industrial Engineering dept. since 1959.

Mr. Strauss has served as chief industrial engineer since coming to Thilmany in 1954. In his new assignment he is responsible for planning and scheduling, traffic and material handling.

New Officers Named By Northwest PIMA

Arthur A. Bernhardt, mgr. of the Nekoosa, Wis. mill of Nekoosa-Edwards Paper Co., has been elected 1961-62 chairman of the Northwestern div., PIMA. His election took place at a recent meeting at the Conway Hotel, Appleton.

Philip Budd of Northwest Paper Co., Brainerd, Minn., becomes first vice pres.; **Larry Pflieger** of Marathon, a division of American Can Co., Rothschild, Wis., second vice pres.; **James R. Wright**, Green Bay Paper & Pulp Co., Green Bay, secretary-treas.

New division trustee is **Arthur Bunks** of the Interlake div., Consolidated Water Power & Paper Co., Appleton.

In line with current expansion, technical supervision is being enlarged at the Wisconsin River div., Consolidated Water Power & Paper Co., Whiting, Wis. **Joseph Streb**, process engineer at the Biron div., becomes technical supervisor for paper; **William Anderson**, with the firm since 1958, is named technical supervisor for pulp. . . .

Almost one-fifth of Minnesota & Ontario Paper Co.'s 4400 employes have been with the firm 25 years or more. Said **Robert Faegre**, president, "We believe it's a record for long-term employment among industries of our size, and we're mighty proud of it." . . . **Balfour Phelan**, vice pres. of Container Corp. of America, has retired after nearly 25 years' service. In his post he was responsible for boxboard and carton operations in the Central div. . . . **Howard L. Simmons Jr.** becomes vice pres. of Weyerhaeuser Co.'s central region shipping container division. He was previously regional vice pres. for sales.

Two promotions are reported by Rhinelander (Wis.) Paper Co.: **Charles Jelinek**, senior chemist in the plant control laboratory, becomes chief converting plant chemist; **Paul Keck**, plant control laboratory chemist, is made asst. to the paper mill supt. . . .

Merrill Seeley, senior time study engineer at the Keokuk, Iowa plant of Hoerner Boxes Inc., is transferred to the Industrial Engineering dept. and promoted to the post of supervising industrial engineer. He is succeeded at the Keokuk plant by **Dale Johnson**, former asst. time study engineer. . . . **Hugh T. Holland**, former senior sales engineer at Everett, Mass., becomes product sales mgr. for paper chemicals in the Organic Chemicals div. of Monsanto Chemical Co. with headquarters in St. Louis. He succeeds **Lloyd D. Shand** of St. Louis, who is on loan to Filtered Rosin Products Co. of Baxley, Ga., a wholly-owned Monsanto subsidiary. . . .

William E. Crawford becomes production mgr. for Wrenn Paper Co., Middletown, Ohio subsidiary of the Mead Corp. He is responsible for technical paper production.

John C. Scarth, new asst. to pres., KVP Sutherland Paper Co., will be active in sales in U.S. and Canada, located in Kalamazoo, Mich. He joined KVP Co. Ltd. (Canada) as pulp chemist in 1948.

James Stephenson is named mgr. of the Data Processing & Methods dept. of the KVP and Sutherland divisions of KVP Sutherland Paper Co., Kalamazoo, Mich. Prior to heading this new department he was supervisor of methods for the Sutherland div. Supervisor of data processing in the new department is **Robert Walters** of the Sutherland div., and **Robert Powell** of the KVP div. becomes supervisor of programing and technical analysis. . . . **Paul W. Coffman** is new gen. supt. of Acme Steel Co.'s Riverdale, Ill. plant.—Don W. Zeigler.

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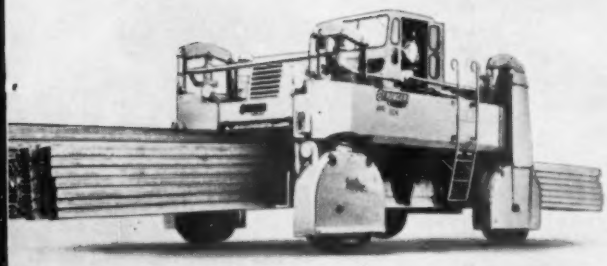

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You don't make a *down payment* when you use the Towmotor-Gerlinger Lease-A-Truck Plan. You put T-G equipment to work on a continuous, year-'round basis. You just make a small monthly payment—paid out of savings the equipment produces.

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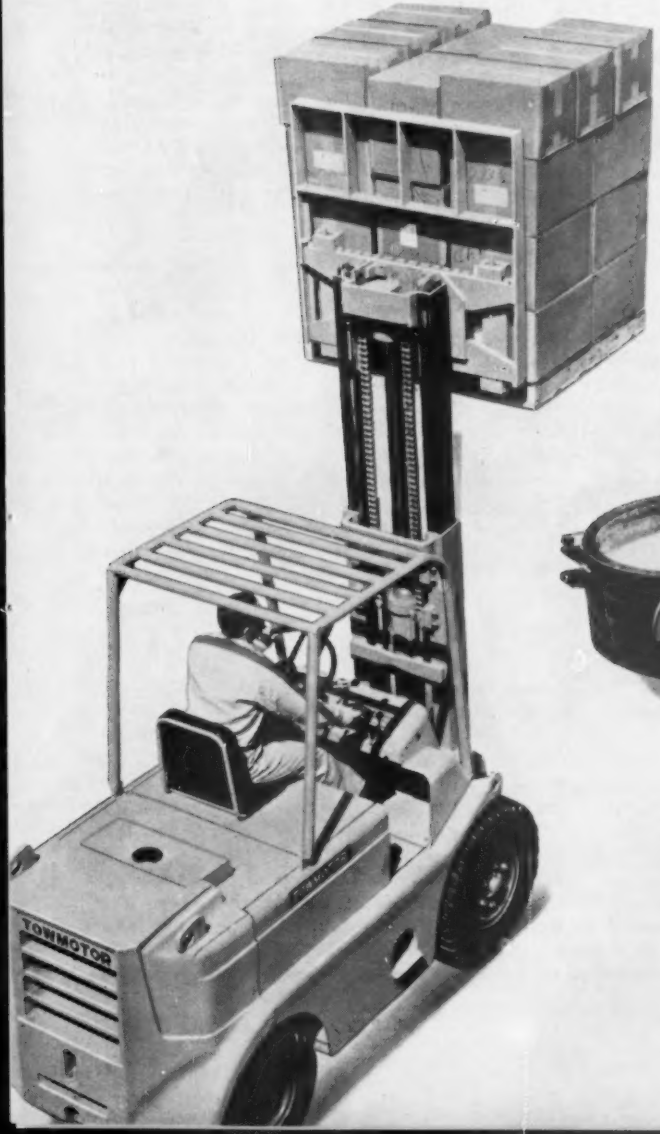

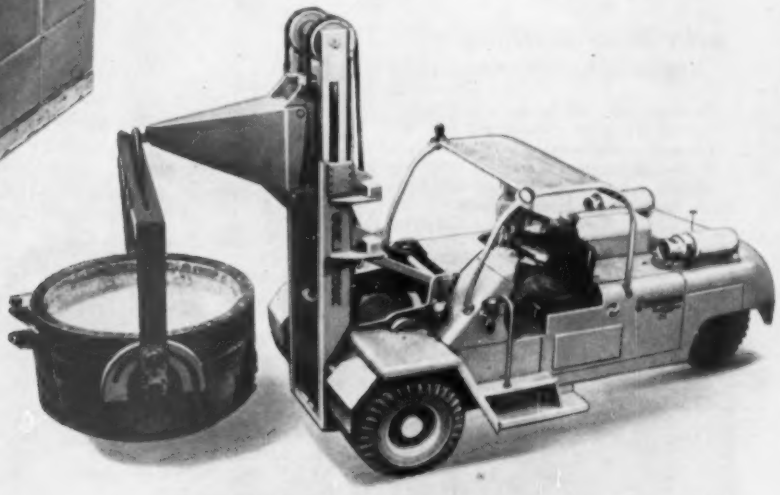

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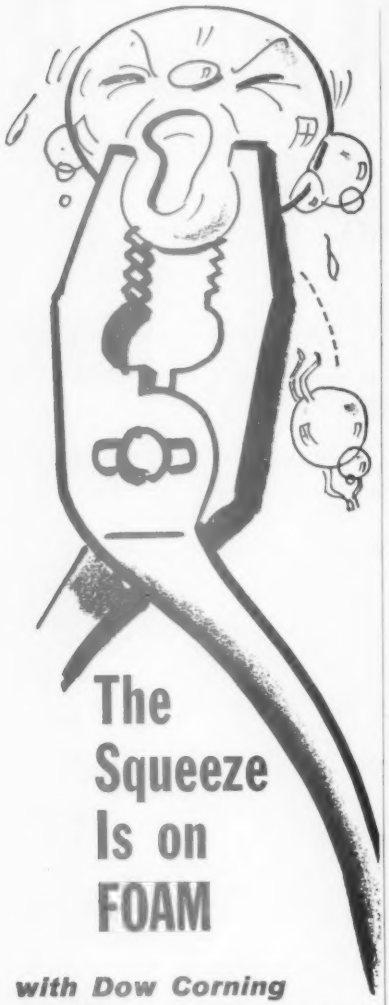

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Pacific

A. Halvar Lundberg, president of A. H. Lundberg Inc., Mercer Island, Wash., and his wife **Linea,** will depart on 6 months tour March 14, going first to Sweden where he is resolved to be on his 65th birthday—40 yrs. after arriving in New York. On leaving the Scandinavian countries they will continue on around the world via India, Hong Kong, Japan and Hawaii . . .

At Crown Zellerbach, **Orville W. Campbell,** asst. electrical supervisor at St. Helens, Ore., has been promoted to electrical supervisor; **Jack D. Williamson,** senior engr. at Camas, Wash., transfers to Antioch, Cal. plant as project engineer; **J. M. Baxter,** chemist, becomes group leader, new development, uncoated grades at West Linn, Ore. succeeding **R. H. Adams** who was promoted to technical asst., sulfite mill and bleach plant . . . In CZ's Western-Waxide: **A. J. Hauschild,** res. mgr. at San Leandro, Cal. moves up to divisional production mgr. as successor to **Lloyd Root** who was promoted to production mgr., San Leandro; **James J. Hickey** is named res. mgr. at San Leandro; **H. M. Gardiser,** plant supt. at San Leandro, transfers to North Portland, Ore. operations as production mgr.; **Richard Phillips** succeeds Mr. Gardiser as plant supt. at San Leandro.

R. E. Baker, formerly vice pres., was promoted to head the paper products section which includes the firm's pulp-paper mill under construction at Snowflake, container division plants in Glendale and Los Angeles, operations of Wilson Paper Co., Vernon Container Corp. and Pioneer Wrapper Co., all of Los Angeles.

The other three organizational sections and their respective top executives are administration, **P. C. Gaffney;** wood products, **E. L. Quirk;** transportation, **S. E. Mounes.**

J. V. B. Cox, senior chemist of Hercules Powder Co., Portland, Ore., has retired after 34 years with the firm. He was associated with Paper Makers Chemical Corp. when Hercules acquired this organization about 30 yrs. ago. Mr. Cox's career has been closely allied with pulp-paper, starting at Appleton, Wis. where he joined Kimberly-Clark immediately after finishing school, operated Hercules Powder's paper service lab in Portland many years, served as secty.-treas. of Pacific TAPPI for 2 terms . . . **Sumner G. Moon,** 88, who retired as director of Boise Cascade Corp. in 1958, died in December in Indiana, Pa. Mr. Moon was president of Boise Payette Lumber Co., Boise, Idaho (one of firms which merged to form Boise Cascade) prior to retiring in 1949. . . . At West Coast Div. Scott Paper Co., Everett, Wash. **Karl A. Steltz,** No. 1 paper machine tender, has been promoted to shift supervisor paper mill to replace John Carpenter who is taking on responsibilities in Australia; **A. David Gamber,** paper mill shift supervisor, becomes industrial engr.; **Geo. P. Thom,** machine tender, becomes shift supervisor in paper mill.

Gus Ostenson, production mgr. for Crown Zellerbach International, San Francisco, and **G. V. Emerson,** pulp mill supt. of CZ Port Townsend (Wash.) div., are in India providing consulting services and technical advice for improving paper manufacturing at a kraft mill of Rohtas Industries Ltd., 300 miles northwest of Calcutta. This firm—subsidiary of Sahu Jain Ltd.—produces some 60,000 tons of paper per year (about 20% of India's total) at its mills. These Americans expect to visit another Rohtas mill site, some 200 miles from Bombay, where a new process (developed by CZ and Hawaiian Development Co.) for producing newsprint from bagasse will be used on major commercial basis for first time . . .

Howard S. Gardner, dir. research & development, Fibreboard Paper Products Corp., Antioch, Cal., is elected president of Technical Advisory Council to U. of Cal's. Forest Products Laboratory succeeding **Byrne Manson,** dir. of engineering & research, Simpson Redwood Co., Arcata, who resigned because the council position is being moved to Seattle. . . . Employes of Crown Zellerbach West Linn (Ore.) Div. recently receiving awards for long-term service include res. mgr. **Ray Dupuis** (30 yrs.), **Andy Deschamps,** converting plant supervisor (45 yrs.). . . .

R. W. Halliday, vice president and comptroller, Boise Casade Corp., Boise, Idaho, has been elected a member in the Controllers Institute of America.

The recent development of artificial mitral valves which have in two cases been installed in human hearts to eliminate potentially fatal leakage within the organ was made possible by **Lowell Edwards,** former plant engr. of Weyerhaeuser Co's. Longview, Wash. pulp division. He left the industry early in War II to devote full time to perfecting military aircraft fuel-pump boosters which he invented. These materially extended

Conserve water with Lodding Self Cleaning Showers

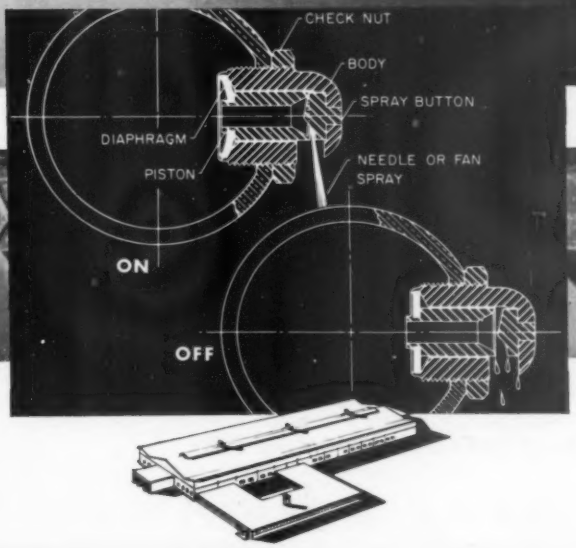
In mill after mill Lodding Showers are conserving water — cutting operating costs — performing effectively.

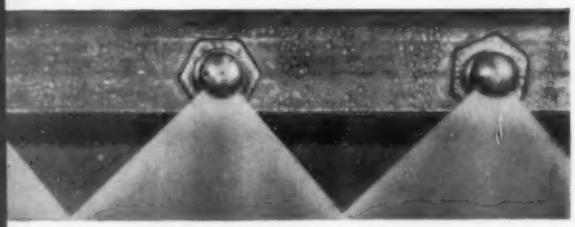
In showers it's the nozzle that counts. And Lodding Nozzles have been engineered to give you the greatest possible showering efficiency, whether your system uses fresh or clarified white water.

Lodding Nozzles are designed with a built-in, sealed piston. In operation, pressure of the water forces the piston against the spray button, which is precision-milled to create the exact spray pattern desired -- from an 80° fan to a needle stream.

As particles become lodged in the nozzle, the piston oscillates and automatically frees them. When the water is shut off momentarily the piston retracts. After the water is turned on again there is a brief period before the piston resumes contact with the spray button. During this interval larger particles are flushed from the nozzle.

It will pay you to investigate all the advantages of Lodding Self Cleaning Showers. Lodding, or one of our sales representatives, will be pleased to tell you more about them.





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capabilities of U.S. aircraft. As owners of Edwards Development Laboratory, Portland, Ore., Mr. Edwards built and jointly developed the mitral valve . . .

Amidon to Present Greeley Lectures

George B. Amidon, director of woodlands for Minnesota & Ontario Paper Co., and president, American Pulpwood Assn., has been named the 1961 William B. Greeley lecturer in industrial forestry at the Univ. of Washington.

He will present a series of three lectures March 2, 3 and 4 on the Seattle, Wash. campus. Mr. Amidon's subject will be, "Development of Industrial Forestry in the Lake States."

Maurice Murray has resigned as paper mill supt. at Weyerhaeuser pulp & paperboard div., Springfield, Ore., to become paper mill supt. of Southwest Forest Industries plant under construction at Snowflake, Ariz. . . . **Laurence T. Bleasdale** is elected a director of Zellerbach Paper Co., San Francisco. . . . **Howard H. Wheat**, formerly acting plant mgr., becomes plant mgr. at St. Regis Paper Co's. San Leandro, Cal. multiwall bag plant.

Southwest Forest Industries Inc., headquartered at Phoenix, Ariz., has organized operations into four groups, each staffed with an exec. vice president to streamline and centralize operations.

Weyerhaeuser Co. makes changes in the organizational structure of its Longview, Wash. branch of pulp & paperboard div. resulting in promotions in this and other branches. According to **Russell J. LeRoux**, mgr. of mfg., pulp & paperboard div., the Longview operations have grown to a size where further specialization in some key responsibility positions is appropriate. Promotions announced at Longview by **E. N. Wennberg**, branch mgr., include **J. R. Callahan Jr.**, formerly asst. branch mgr., becomes production mgr.-board (newly created position) and will continue to act for the branch mgr. during the latter's absence; **Andrew A. Broz**, tech dir. at Weyerhaeuser's Everett sulfite mill, transfers to Longview in newly created position of production mgr.-pulp; **Arthur E. Erickson**, tech. dir. for past several years, becomes tech. dir.-pulp and **Charles Koon**, who recently joined Weyerhaeuser, tech. dir.-board (both new positions); **Grant M. Eade**, office mgr. of lumber-plywood branch at Everett, joins Longview pulp-paperboard branch as office manager. Other Longview pulp-paperboard assignments—these announced by Mr. LeRoux—include **Robert H. Quick**, asst. tech. dir.-paperboard, to tech. coordinator-board; **Glenn E. McAfee**, sales representative, to coordinator of sales of pulp & board with additional responsibilities for export shipments; **Glen W. Potter**, pulpwood buyer, to coordinator of wood source & supply.—Louis H. Blackerby

Canada

Harold McBean, who was manager at Woodfibre, B.C., mill of Rayonier Canada prior to its shutdown as a sulfite pulp producer, will be manager when the mill swings into production of bleached kraft early this summer. **William Francis**, formerly of the company's Port Alice kraft mill, will be supt. at Woodfibre. Resident engineer will be **Dave Story**, who was project engineer when the Port Alice mill was being modernized a few years ago. **Thomas Miller** has been named steam plant engineer and **David Reid** personnel manager. All have been with Rayonier Canada for several years.

E. L. Neal, pres. and gen. mgr., Gaspesia Sulphite Co., Chandler, Que., and chairman, Technical Section CPP will be general conference chairman of the 1961 summer meeting of the section, which will take the form of a chemical pulping and bleaching session at Saranac, N.Y. A program committee has been named under the chairmanship of **W. H. Bush**, Dryden Paper Co., **L. N. Stanners**, Anglo-Canadian Pulp & Paper Mills, and **W. H. Rapson**, University of Toronto.

Morrisette

Fraser

McLenaghen

Abitibi Power & Paper Co. Ltd. announces changes in top operating personnel following retirement of **G. J. Morrisette** as mill mgr. of the Iroquois Falls (Ont.) div. He is succeeded by **R. L. Fraser**, former mill mgr. of Abitibi's subsidiary, Manitoba Paper Co. Ltd., Pine Falls, Man.; latter plant is now managed by **T. Newman McLenaghen**.

John E. Liersch has resigned as vice pres., pulp, paper and timber, MacMillan, Bloedel & Powell River, Ltd., according to announcement by **J. V. Clyne**, chairman of the board. **Ralph M. Shaw**, formerly exec. vice pres., has been made senior exec. vice pres. and **Ernest G. Shorter**, formerly vice pres., becomes executive vice pres. in charge of all company production. Mr. Liersch, who directed wartime spruce production on the Queen Charlotte Islands, resumed his position as head of the University of B.C.'s forestry faculty after the war and then joined Powell River Co. as chief forester, was exec. vice pres. of Powell River Co. when the merger with MacMillan & Bloedel took place in 1959. Mr. Shaw joined the old H.R. MacMillan Export Co. as a clerk in 1928, specialized

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TITANOX-A-CG

(CG = coating grade)

- particularly suited to high solids, high speed coatings applied by the trailing blade coater
- entirely suitable to coatings applied by all other processes, including size press and calender
- characterized by ease of dispersion at high solids, low viscosity and stability of coating suspensions, and minimum abrasion
- outstanding for freedom from agglomerates and for readily producing high gloss and maximum smoothness of fine finishes
- preferred for all types of coated papers, except waxing and similar stocks that may require TITANOX-RA-50

For beater-pigmented papers requiring anatase TiO_2 pigment:

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(WD = water dispersible)

- particularly adaptable to central slurrying systems because of low water absorption
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For waxing and similar stocks, especially in coatings:

TITANOX-RA-50

(rutile titanium dioxide)

- easy dispersion yields smooth suspensions at high solids that are free from coarse agglomerates
- provides highest brightness and opacity obtainable in waxed and similar stocks
- ideal for use in situations where the opacifying power of anatase TiO_2 is insufficient

In addition to the above, we are in a position to offer highly specialized titanium dioxides to solve particular problems, particularly where TiO_2 is the determining factor. For information on the type of TITANOX best suited to your particular requirements, we invite your inquiries. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities. In Canada: Canadian Titanium Pigments, Ltd., Montreal.

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in sales, became vice pres., sales, and finally pres. MacMillan & Bloedel in 1957. Mr. Shorter, primarily interested in the lumber and logging division in the past, joined the MacMillan organization in 1936 as yard foreman and shipper. He was made vice pres., production, in 1956.

R. Harley McGee is assistant research director of Bathurst Power & Paper Co. according to **J. McK. Limerick**, director of research and development. He will continue to be located at the company's container research laboratory in St. John, N.B.

Thomas A. Hendry, Sr., 73, former general sales manager, Abitibi Power & Paper Co. and Mead Sales Co., died recently while in retirement at Boynton Beach, Fla.

John V. Clyne, chairman of the board, MacMillan, Bloedel & Powell River, Vancouver, B.C., and a former judge of the supreme court, has been appointed by the provincial government to investigate and report on land appropriation laws.

B. F. Avery, chairman, KVP Co., Espanola, Ont., has named the following national directors as members of a newly formed publicity council for the Canadian Forestry Assn.: **W. F. Myring**, Vancouver; **B. F. Sine**, Calgary; **R. A. Kramer**, Regina; **Alan Beaven**, Winnipeg; **James D. Coates**, Toronto; **J. A. Breton**, Quebec City; **J. B. Kelly**, Fredericton; **R. S. Johnson**, Liverpool. Their job will be to help promote public education in the value of forests and related natural resources of Canada.

A. T. Sutherland has been named as the senior representative in Canada of Millspaugh, Ltd., of Sheffield, Eng. A director and vice pres. of Millspaugh (Canada) Ltd., Mr. Sutherland will be responsible for the liaison betwen Millspaugh and the recently organized H.M.K. Sales, Ltd., He will continue to maintain his close relationship with the Canadian pulp and paper industry.

Lew Paine has been appointed paper mill engineer for St. Croix Paper Co. after serving for several months as project engineer. **Harry Tiller** has joined the company as control engineer. He was formerly at Grand'mere, Que., and his first experience in the industry was in Newfoundland.—Charles L. Shaw

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Could your present pumps pass this abrasive slate plus a *nine-inch piece of ¼" steel?* The Torque-Flow pump did—with ease! Think what this means for your toughest of pumping problems! Its solution is as near as your nearest Wemco representative.

reason: recessed impeller; continuous open passage *(what will go in will come out)*

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South

R. M. Gilmore Elected To National Safety Office

Mr. Gilmore, gen. safety supervisor for all operations of Rayonier Inc., is elected secretary of National Safety Council's pulp-paper section. A pioneer in industrial safety work, he resides at Aberdeen, Wash., has long been member of APPA safety committee, and is a member of Logging Safety Institute and Labor-Management Safety Conference planning committees; holds membership in Amer. Soc. of Safety Engs. and Veterans of Safety.

George Harriss, N.C. State graduate and onetime engineer with Union Bag-Camp, has joined the staff of Riegel Paper Corp., Acme, N.C., as industrial engineer. . . . The continually growing Pulp and Paper Foundation at North Carolina State College has awarded scholarships totalling $32,500 in the School of Forestry for this year. Some 36 potential papermakers are now attending the school under Foundation grants. . . . Hilton Valves, Inc., which began manufacturing special valves for slurry services the first of this year, has offices located in Greenville, S.C., P.O. Box 1211.

Milton Lite, formerly assistant department head of J. E. Sirrine Co., Inc., has opened his own office to practice consulting mechanical engineering specializing in industrial steam and power applications. His offices are at 426 N. Pleasantburg Drive. Greenville, S.C.

J. C. Hair, manager of The Crossett Co.'s paper division, announces appointment of **J. W. Taylor** as sales manager.

Dr. Preston H. Leake has joined the technical div. of Albemarle Paper Mfg. Co., Richmond, Va., as manager of chemical research. He is a graduate of U. of Virginia, with m.a. and ph.d. degrees in organic chemistry from Duke U. He was with Nitrogen Div. of Allied Chemical in Hopewell, Va., for six years as senior research supervisor. . . . Also new with Albemarle's technical div. is **Dr. Ronald B. Estridge,** as senior development engr. He is a graduate of North Carolina State College, and recently received his m.s. and ph.d. degrees at Institute of Paper Chemistry.

E. A. Davenport Jr., asst. conservation supt. for Union Bag-Camp Paper Corp., Savannah, Ga., becomes chairman of the Georgia Tree Farm Committee. He succeeds **Erle T. Newsom Jr.**, director of woodlands for Rome Kraft Co. . . .

Historical note: Some 150 blueprints and other drawings of the early Chesapeake Pulp and Paper Co. which went out of existence in . . . **turn to p. 90**

Modern Aloyco casting operations pay off for customers!

As the world's leading specialist in the manufacture of Stainless Steel Valves, Aloyco constantly seeks new techniques, new equipment and new ideas for improving product uniformity and quality. Close integration between sales, engineering, foundry and all phases of manufacturing result in better control of quality, prompt deliveries, and more flexible customer service.

Aloyco combines over 30 years of specialized experience with the most advanced equipment for putting that experience to work on your corrosion problems. Technically qualified Aloyco men are available throughout the country to help you. Alloy Steel Products Co., Inc., 1316 West Elizabeth Ave., Linden, N.J.

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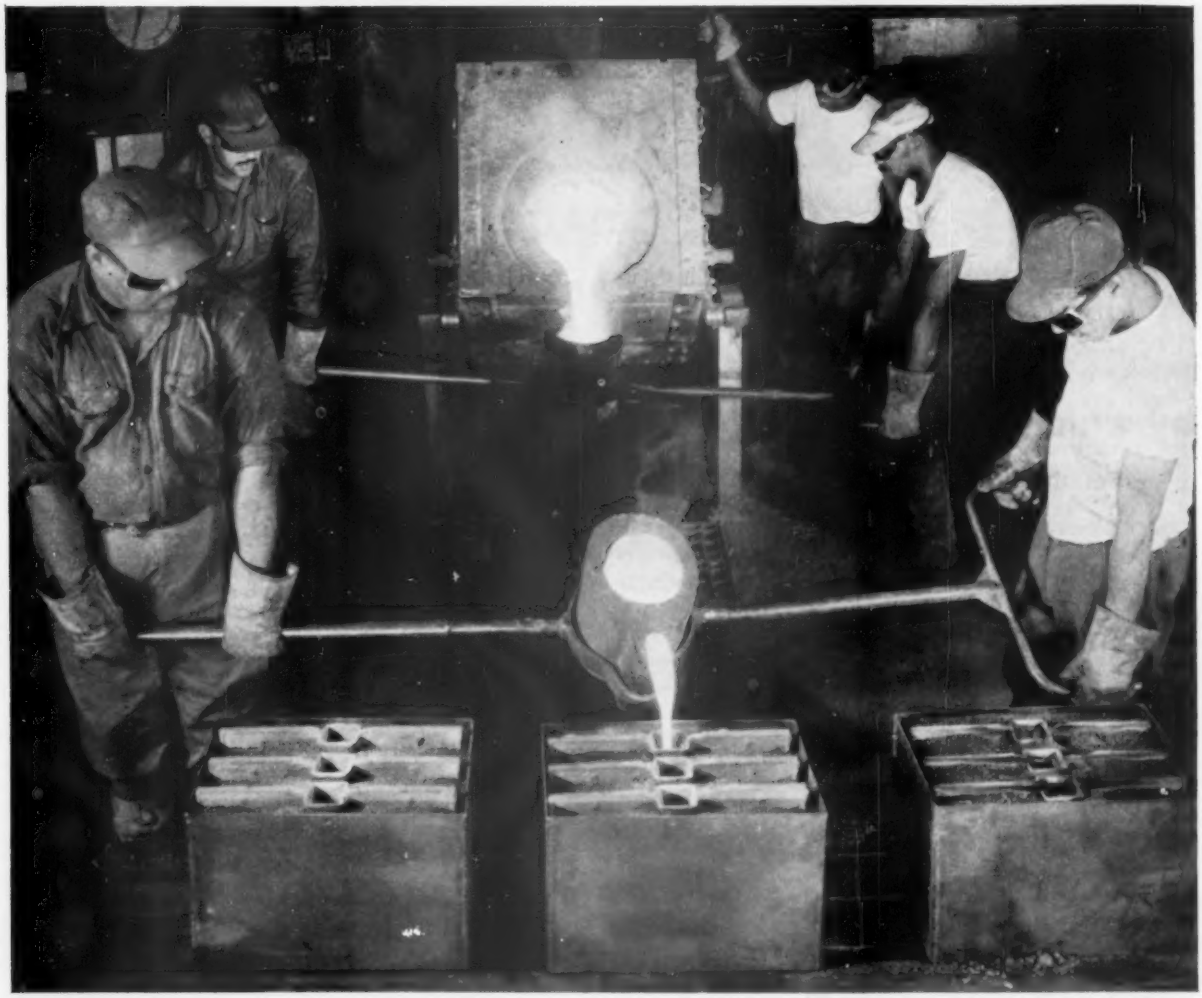

Part of Aloyco's foundry facilities include modern shell moulding techniques which permit unusually high dimensional accuracy. Radiographic inspection and dye penetrant testing are part of a comprehensive and rigid control program that assures castings of highest quality and uniformity.

Dryden=Quality
Quality=Dryden

Our customers tell us:

"Dryden is the new standard by which all pulps are compared."

At trade conventions, when the subject of "Quality" comes up, paper men always *start* with talk of Dryden.

As one customer recently told us, "Dryden is the new standard by which we compare all other pulps. When a new pulp comes along, our research people compare it with Dryden."

Our friend was referring to Dryden Bleached Sulphate Pulp, but the same can be said for Dryden's unbleached, electrical, and other specialty pulps.

Whether you want strength, or brightness, or cleanliness, or purity, Dryden pulps are unsurpassed.

Have you checked the "QUALITY=DRYDEN" equation in your own laboratories?

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SOLD BY: **Anglo Paper Products, Ltd.**
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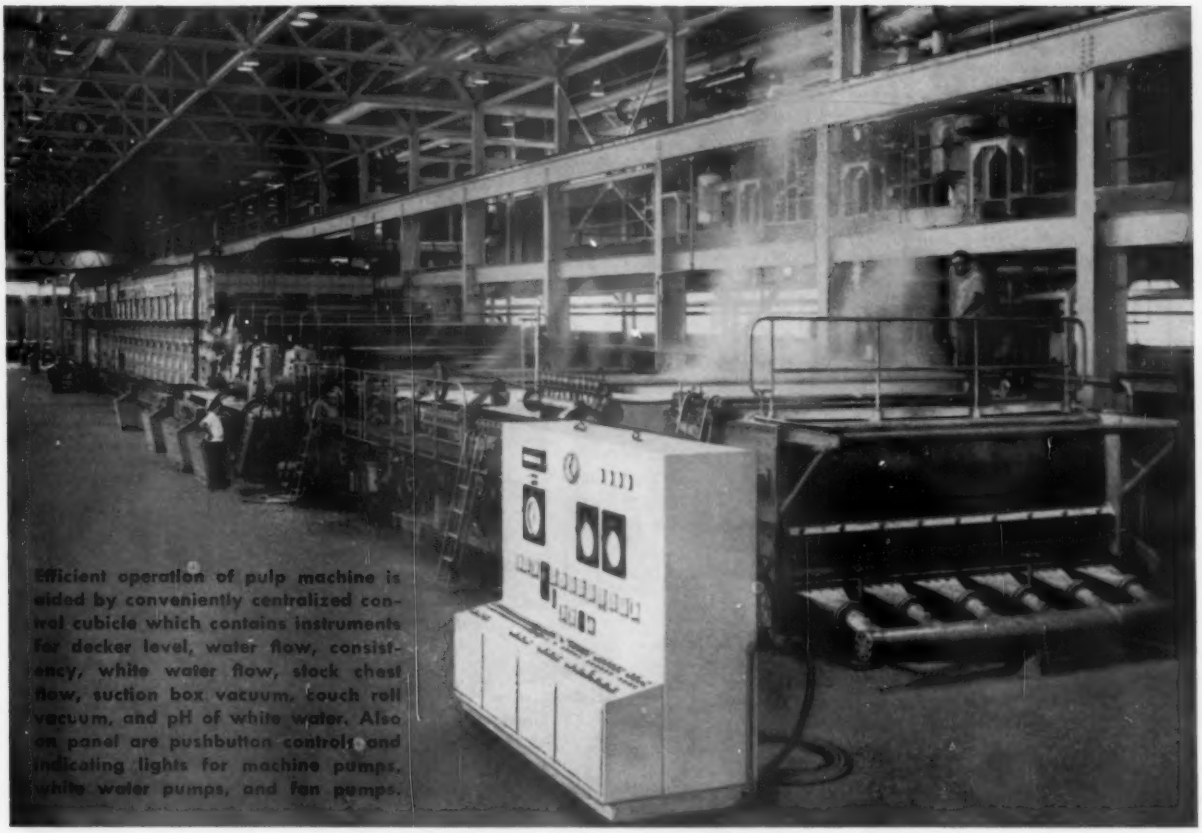
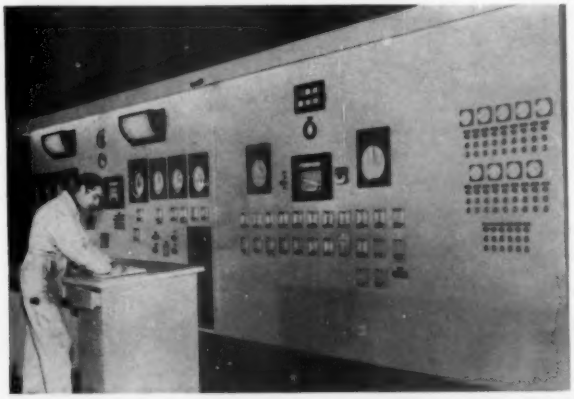


Efficient operation of pulp machine is aided by conveniently centralized control cubicle which contains instruments for decker level, water flow, consistency, white water flow, stock chest flow, suction box vacuum, couch roll vacuum, and pH of white water. Also on panel are pushbutton controls and indicating lights for machine pumps, white water pumps, and fan pumps.

Pushbutton pulping boosts quality and production at new Alaska mill



Controls for recovery boilers and liquor evaporators are grouped on one panel. Throughout the process, all variables are precisely measured and controlled, so that the mill can produce consistently high grade alpha cellulose with maximum economy and efficiency.

Honeywell controls make pulping completely automatic at the new sulfite mill of Alaska Lumber & Pulp Company, near Sitka. Built to supply cellulose to Japan's rayon industry, the mill daily produces 340 tons of top grade dissolving pulp, and is a fine example of the efficiency and quality control that inevitably result from modern instrumentation.

Controls for each application were chosen from the complete line of Honeywell instruments. Cam programmers automatically steam all digesters. In the acid plant, *ElectroniK* instruments record burner temperatures measured by *Radiamatic* radiation detectors, and various temperature and flow controllers regulate liquor evaporators and recovery boilers. In the washing operation, *Tel-O-Set* miniature instruments control shower water flow and filtrate tank level. In the bleachery, ratio controllers accurately add bleach in relation to pulp flow. Automation is complete even to the *Dur-O-Pulse* telemetry system that monitors settling basin level at the filter plant and transmits the information to the turbine room panel.

Your nearby Honeywell field engineer can help you gain the many benefits of custom-designed, modern instrumentation in your own mill. Call him today . . . he's as near as your phone.

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Honeywell

First in Control

SINCE 1885

STRICTLY PERSONAL . . .

starts on p. 86 . . . 1918, have been turned over to the Chesapeake Corp., its successor. Fox Paper Co., Lockland, Ohio, which established the orginal mill, one of the first kraft mills in the South, gave the valuable records to Chesapeake. Some of the original installations, built in 1914, are still standing. . . . **Fritz Haehnel** has been appointed converting supt. at Olin Mathieson's Ecusta div. in Pisgah Forest, N.C. . . . **Ed W. Beardsley**, of Corn Products Sales Co., formerly on the West Coast, is now operating in the South from an Atlanta office at 3330 Peachtree Rd., N.E.—William F. Diehl, Jr.

Pulpwood

W. Lester Brown is promoted to land management forester, Catawba (S. C.) Timber Co., wood supplier to Bowater plants at Catawba. He was formerly land acquisition forester.

Roger Martin transfers from St. Regis Paper Co.'s Hinton, Alberta plant to the firm's Tacoma, Wash. operations as asst. logging manager. He will be responsible for wood procurement for St. Regis plants in Puget Sound area.

James Wolf joins the woods dept. of D. M. Bare Paper Co., Roaring Spring, Pa. He is a recent forestry graduate of Penn State Univ. . . .

Albert Ernest, vice pres. in charge of southern woodlands for St. Regis Paper Co., has been elected president of the Florida Forestry Assn. . . . Retired: **C. E. Nichols**, logging mgr. for Crown Zellerbach Corp.'s northwest timber operations. A veteran of 49 years in the pine, redwood and Douglas fir regions, he is succeeded by **Howard W. Peterson**, formerly asst. logging mgr. in the Portland, Ore. headquarters. At the same time, **Jack F. Robertson** became gen. safety supervisor for CZ's U. S. timber and manufacturing operations. . . .

Allied

W. C. (Bill) Hand is named to cover California, New Mexico, Arizona and Hawaii for E. D. Jones Corp. For past four years he has been asst. to headquarter sales mgr., Pittsfield, Mass.

Rice Barton Corp. has created a new post. **John C. Gresham** becomes chief engr. special products, specializing in sectional electric drives. He was formerly with G.E.

Norton Co., Worcester, Mass., has elected its seventh president in the firm's 76-year history. He is **Ralph F. Gow**, who now heads the world's largest manufacturer of abrasives. He succeeds **Milton U. Higgins**, who steps up to board chairman. Replacing Mr. Gow as exec. vice pres. is **John Jeppson**. . . . Westinghouse Electric Corp., now celebrating its 75th anniversary, has combined its Small Steam Turbine and Industrial Gas Turbine depts. into the newly-organized Small Steam & Gas Turbine dept. The new department is headed by **R. C. Twombly**. . . . Allis-Chalmers Mfg. Co., Milwaukee, has changed the name of its Pump & Compressor dept. to the Fluid Dynamics dept. Department mgr. is **E. F. Greiwe**. . . . Manhattan Rubber div., Raybestos-Manhattan Inc., is selling its new Poly-V "J" drive through industrial distributors. During its introductory period, this drive was sold only through equipment manufacturers. . . .

Wood

Neese

Beloit Eastern Corp., Downingtown, Pa., has announced election of **W. S. Wood** as board chairman and **E. H. Neese Jr.** as president and gen. plant mgr. **John R. Walsh**, former vice pres. and gen. mgr., becomes vice pres. and gen. plant mgr. of Beloit Iron Works, Beloit, Wis.

Toovey

McCabe

Wood

Thomas W. Toovey succeeds the late **M. W. Davis** as president of Sherbrooke Machineries Ltd., Sherbrooke, Que., Canadian affiliate of Improved Machinery Inc. He has been with the firm since 1950 as sales mgr. In other appointments, **Russell I. McCabe**, gen. mgr., becomes vice pres., manufacturing, and **Josiah (Si) Wood** vice pres., sales.

. . . turn to p. 94

UP HERE, there's A EUCLID CRANE

Placing Cores on the Paper Winder

DOWN HERE

This essential paper mill operation is made easier and accomplished quicker with the aid of a precision control Euclid Crane.

Directly behind the large sheet roll of paper are three more cores ready for placement on the winder.

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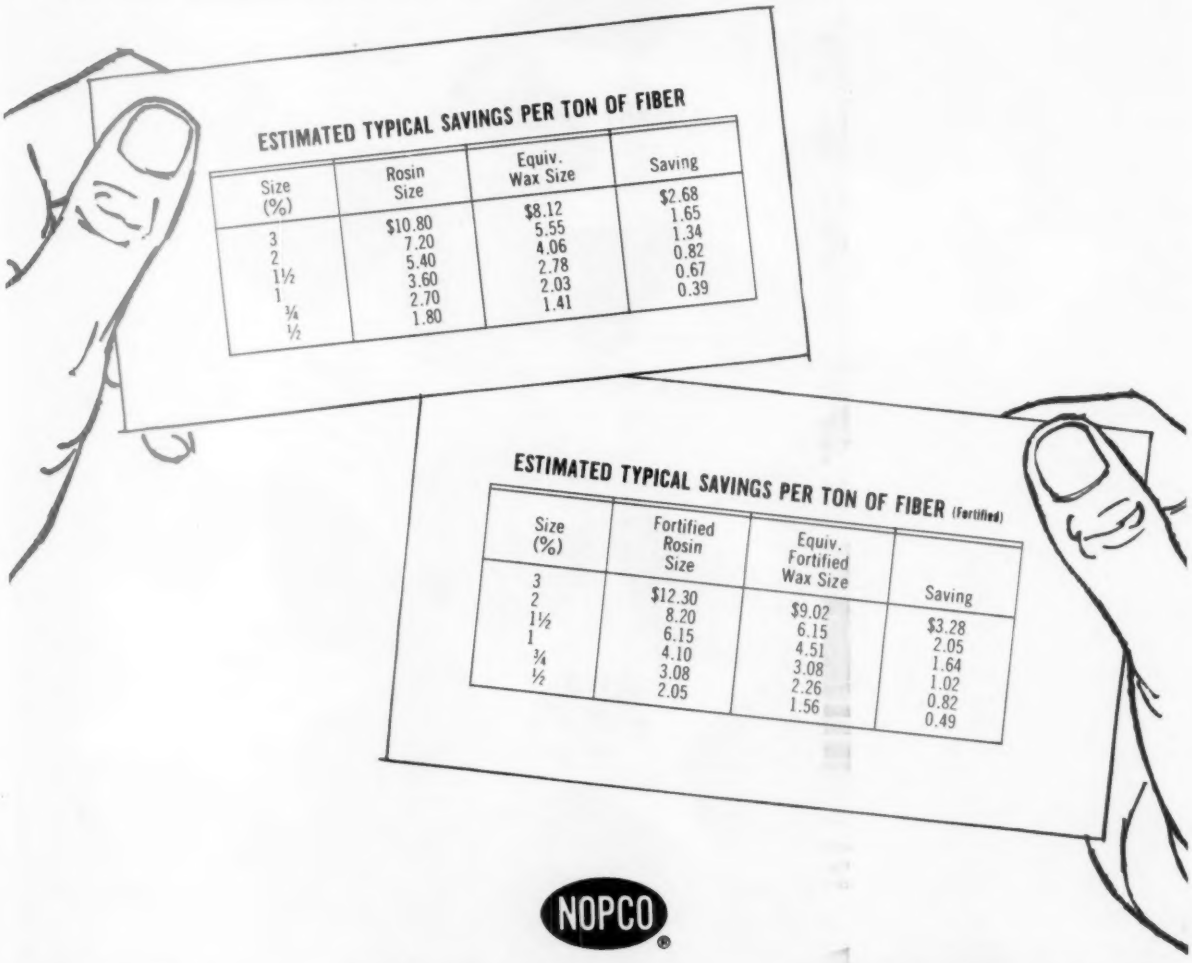
Our Technical Service Engineers, utilizing over 30 years' experience with wax sizes, are ready to show you the advantages to be gained by the use of wax sizes in conjunction with rosin sizes. Write today for further information.


ESTIMATED TYPICAL SAVINGS PER TON OF FIBER
Size (%) | Rosin Size | Equiv. Wax Size | Saving
3 | $10.80 | $8.12 | $2.68
2 | 7.20 | 5.55 | 1.65
1½ | 5.40 | 4.06 | 1.34
1 | 3.60 | 2.78 | 0.82
¾ | 2.70 | 2.03 | 0.67
½ | 1.80 | 1.41 | 0.39
ESTIMATED TYPICAL SAVINGS PER TON OF FIBER (Fortified)
Size (%) | Fortified Rosin Size | Equiv. Fortified Wax Size | Saving
3 | $12.30 | $9.02 | $3.28
2 | 8.20 | 6.15 | 2.05
1½ | 6.15 | 4.51 | 1.64
1 | 4.10 | 3.08 | 1.02
¾ | 3.08 | 2.26 | 0.82
½ | 2.05 | 1.56 | 0.49

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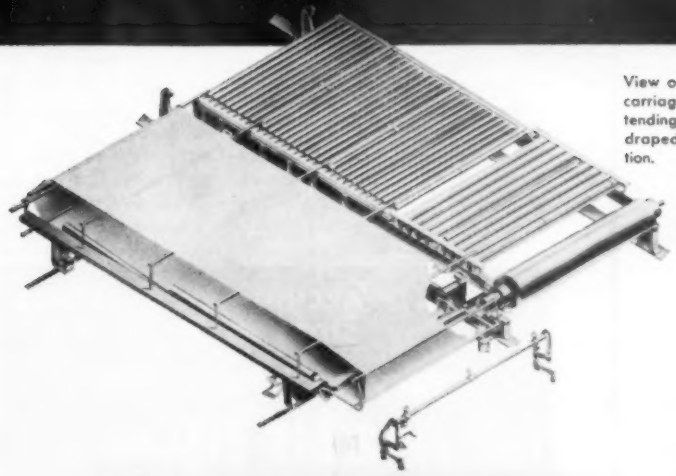
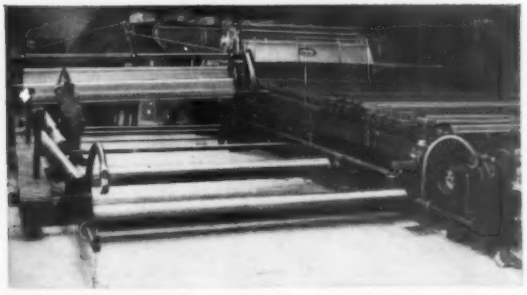


View of a Rapi-Drape undercarriage drawn out into the tending aisle with the wire draped and ready for installation.



The Rapi-Drape wire changer consists of undercarriage which runs out into the tending aisle leaving the table undisturbed. New wire is draped on the undercarriage, which is then rolled back into place.

A recent test of wire changing time showed that with a Rapi-Drape Fourdrinier it was possible to change the wire on a 234″ machine in 55 minutes, compared with an average of 90 minutes for conventional Fourdriniers. This improvement is achieved by the use of a unique undercarriage arrangement which allows the Fourdrinier table as a unit to remain in the operating position. It is unnecessary to disconnect suction box vacuum hoses, suction box oscillators, showers, shake rods, etc., thus avoiding the possibility of troublesome and leaking connections remade in a hurry under pressure. A further saving is possible because on machines equipped with Rapi-Drape wires can be run longer.

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3

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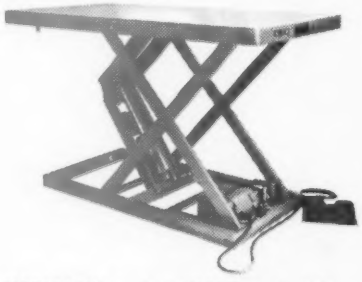
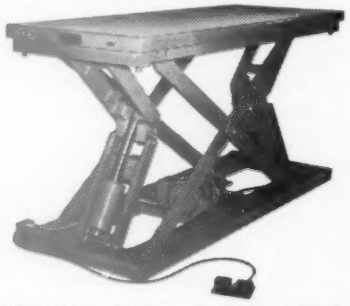
AMERICAN'S Pantograph Lift Tables, in the M-1170 Series, have been designed for all industries using pallets or skids. The Pantograph Lift Tables are characterized by their small platform sizes, high travel, and capacity range.



AMERICAN'S Series M-1202 Lifts are truly the "Jack-of-all-Work". Ideally suited for handling intermediate sized loads of sheet materials, bulky items, or heavy awkward parts.



AMERICAN'S Series M-1223 Lifts are designed for heavy industrial applications—to handle heavy sheet material, lumber, structural steel, brick and tile, as well as bulky, heavy or awkward pieces.

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News of Suppliers . . .

Changes in Chain Belt Co. Marketing Staff

Appointment of **G. H. Pfeifer** as director of product merchandising and public relations has been announced by the Milwaukee company. **Robert F. Olson** becomes sales promotion mgr. of the industrial section and **Jack Heaps** sales promotion mgr. in the construction machinery section. Mr. Pfeifer had been mgr. of sales promotion and advertising since 1955.

Foster D. Snell Inc., New York, N. Y. chemical consultants, has acquired Calkin & Bayley Inc., New York industrial consulting firm. Calkin & Bayley will be operated as a wholly-owned subsidiary with **George T. Bayley** serving as vice pres. in charge of the division. . . . A new firm, Wheelabrator Corp. of Canada Ltd., is the successor to the Canadian div. of Wheelabrator Corp., Mishakwa, Ind., and will handle sales and fabricating activities for all Canadian provinces. Company supplies airless blast cleaning equipment, abrasives and dust and fume collection systems from its Scarborough, Ont. plant. . . .

Borden Chemical Co. forms three new divisions: **Raymond J. Lodge** heads up the Adhesives & Chemicals div.; **Ray T. Hanson** takes charge of the Western Operations div., and **Harry C. Wechsler** directs the new Thermoplastics div. . . . H. C. Shaw Co. Inc., Stockton, Cal., is named a distributor for the Wright Saw div., Thomas Industries Inc., Louisville, Ky. California firm will handle sales of power saws in Arizona and southern California. . . . Simonds Saw & Steel Co. has opened a branch warehouse, sales office and service shop in Union, N. J., to replace the Boston branch that served the eastern seaboard from Maine to Florida. Branch will also be operation headquarters for Heller Tool Co.'s east coast division, formerly located in Newark. . . . Koppers Co. Inc. has acquired controlling interest in Thomas Flexible Coupling Co., Warren, Pa. Latter firm will operate as Koppers subsidiary. . . .

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- Manual tensioning, sealing and severing. One handle tensions, the other seals and severs with a single stroke
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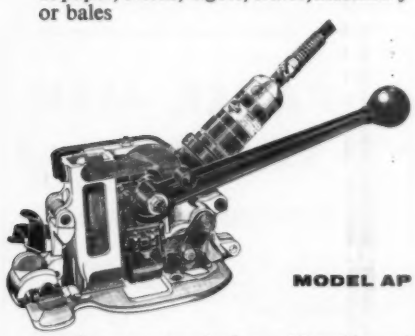
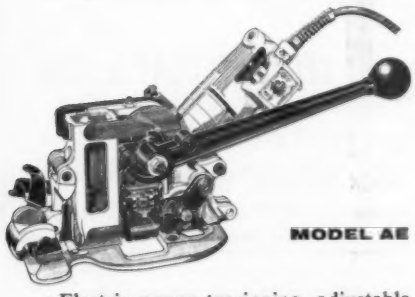


MODEL AP

- Air power tensioning, adjustable and automatically regulated
- Applies pre-set tension every time
- Manual single-stroke sealing and severing
- Automatic seal feed magazine holds 75 seals

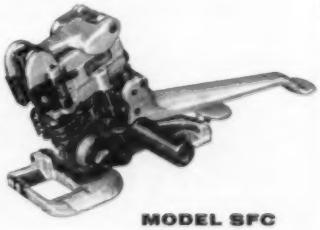


MODEL AE

- Electric power tensioning, adjustable and automatically regulated. Also applies pre-set tension every time
- Manual single-stroke sealing and severing
- Automatic seal feed magazine holds 75 seals

MODEL AMP

- Fast, new all-power-operated portable tool from Signode
- Air power tensioning, sealing and severing, all push-button controlled
- Tensioning is adjustable and automatically regulated
- Automatic seal feed magazine holds 75 seals



- Manual tensioning and sealing; strap is scored rather than severed
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LETTERS to the editor

"Freeness is a Difficult Variable." —A Reply to a TAPPI Report

—Neenah, Wisconsin, U.S.A.

Editor: In the December, 1960, issue of PULP & PAPER, Mr. James K. Powell reported on the TAPPI Engineering Conference under the title "Process Instrumentation," "Process Control Man Is A Key."

At the end of the report he comments at some length on my paper "Continuous Freeness Recording Controller." I offer the following in rebuttal to Mr. Powell.

After a concise description of this instrument, Mr. Powell expressed some reservations about its feasibility for other than laboratory uses.

It is well known that freeness is a difficult variable to measure continuously. We believe that we have made a significant contribution in this area.

We had the objective of developing a mill process device, not a laboratory test instrument. The success of this development is attested to by over two years of continuous mill operation with very little maintenance.

The consistency of the stock to the freeness recorder is controlled by a commercially available controller followed by a fixed ratio dilution. This has proven adequate to minimize the effect of varying consistency.

We have never had any bubble pipe plugging and none was expected.

Purge water flow is controlled by standard constant differential flow controllers. In the event of a flow control failure, the maximum error due to as much as 240 ml./min. flow through one orifice tap and zero flow through the other tap would not exceed 0.108" water column for our installation. This would result in a 0.108% error on the indicated flow. Since 0.1 G/min. flow change represents 5 mil. freeness change or 0.02 G/min. per 1 mil. the maximum error resulting from the purge water system failure would not exceed $.02 \times \frac{0.108}{100} = 0.0000216$ G/min. or 0.0000216 ml. per each ml. freeness.

In order to obtain proper adherence of the fiber matt to the screen, the sample consistency and rotor speed must be adjusted for each type of pulp. Lower consistencies and lower speed are used with high freeness pulps. The temperature of the slurry is recorded on the same chart with the freeness. If there is any excessive temperature swing it would be immediately observed and its effect on freeness compensated by the operator. In case of frequent and drastic temperature changes this compensation can be accomplished automatically by a suitable air pressure relay.

I hope that these comments will satisfactorily answer Mr. Powell's objections. *—George Chedomir Instrumentation Laboratory, Research and Development, Kimberly-Clark Corp.*

—Calhoun, Tennessee

Editor: In all fairness, Mr. Chedomir's comments merit attention. My initial observations have not changed. If they prove to be wrong, it won't be the first time!—*J. K. Powell, Instrument Superintendent, Bowaters Southern Paper Corp.*

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If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

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The last word

How Important Is Paper? The Lesson in a Recent Snowstorm

Sometimes it takes a phenomenon of nature to demonstrate how essential paper is to everyday living.

About the time this issue went to press, two storms—one from the west and one from the southwest—merged over the northeastern area of U.S.A. and through a night and most of a day dumped snow over Washington, Philadelphia, New York and points north and east. In their separate courses, the storms also left heavy blankets to the west and south.

A 17-inch fall in New York City created history when the mayor barred its city streets to cars of any kind, except those on emergency errands or delivering food and necessities. This was the first time this had ever happened in this metropolis and it affected tens of thousands of cars. All the suburbs fanning out from Manhattan were equally hard hit, many trains being cancelled or traveling late. And, as usual, northern New York in some places received twice as much snow in the same period.

The lesson brought home by all of this concerns newsprint. House deliveries generally were cancelled in and outside New York. But this didn't stop the hardy city cliff-dwellers and their equally hardy suburbanite or exurbanite cousins.

As soon as they could shovel out their cars in the suburbs and even farther out, they were seen snailing their way from supermarket to kiosk, from gas station to stationery or drugstore, snatching up newspapers wherever they could find them. Literally thousands of cars outside the city were bent upon this mission! Picking up groceries, restocking the family larder, collecting a paper carrier of beer or a "fifth" to keep the family snowshoveler warm—all these errands seemed to be secondary to getting a newspaper. This was reported by a PULP & PAPER editor stranded near Connecticut in Rye, N. Y., as a house guest.

We saw many a driver who had arrived too late at two or three stores or shops, but refused to give up, still looking for one with papers. A devotee of the New York *Times* or the *Tribune* grinned with glee and felt warm success when he had to take the *Journal-American* or the *News*. And there were "runs" on supplies of the local town daily or weekly.

In the city, the cliff dwellers emerged from their apartments and sloshed through high drifts in search of the same.

Another PULP & PAPER editor, snowbound in Yonkers, spent three hours in the train station and aboard the train working his way back to the city. During that time he met the circulation manager of one of the larger New York dailies who also was determined to get to work.

"I've got to get in," he said. "The paper called to say they were deluged with calls from people who wanted to know whether they would get their Sunday paper or not. We've been mobilizing ever since. We're borrowing and renting trucks to replace the ones that are jammed up in snow. Sometimes I think a man needs a paper almost as much as he needs his dinner. . . ."

At 2:00 A.M. the next morning on the street in front of Grand Central Station, half a dozen people stood huddled in the below freezing weather for more than 15 minutes waiting for the Sunday New York Times to be delivered. When it finally came the newsstand operator ordered 300 copies, confided that "they'll never last the night" . . . despite the fact that the streets were piled high with snow and the thermometer was nipping at the 20 degree mark.

A sleepless editor, who was among them, was so busy grabbing for a paper when they finally arrived that he neglected his duties, forgot to take a picture of this stirring scene.

A newspaper—any newspaper—please! One searcher in Brooklyn passing another shouted, "Hurry up! There are four copies at Joe's."

And all this time, mind you, anyone who wanted to switch on his television or radio could get the usual programs . . . news, too.

That was the paper "lesson" in the great eastern snowstorm of the weekend of February 3 to 5. Millions of people were ready to face any hardship, just so long as they had their newspaper, or any newspaper! ■

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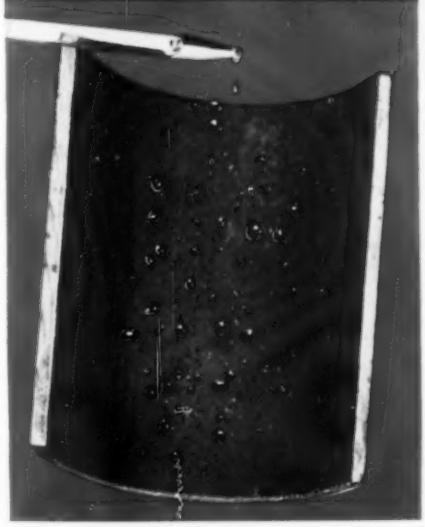

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